MOSH

Bloodborne Pathogens Standard: Compliance Inspector/Consultant Training Program

Cristina Campbell Harris
(410) 527-2079
campbell.cristina@dol.gov

Introduction

The Challenge:
Protecting Maryland's
Workers From
Bloodborne Pathogens

Presentation Overview

- Information about bloodborne pathogens
- Regulation and ECP availability
- Potential for exposure
- Employer Responsibilities
- CSHO Responsibilities
- Methods of Compliance / MOSH policies
- Hepatitis B vaccine
- Responding to exposure incidents

What are Bloodborne Pathogens (BBPs)?

…Disease-causing microorganisms that may be present in human blood or *other potentially infectious materials (OPIM).*

Other Potentially Infectious Materials (OPIM)

- Semen
- Vaginal secretions
- Cerebrospinal fluid
- Synovial fluid
- Pleural fluid
- Pericardial fluid
- Peritoneal fluid
- Amniotic fluid

Other Potentially Infectious Materials

- Blood, organs, or other tissues from experimental animals infected with bloodborne pathogens
- Saliva in dental procedures

(cont'd)

Other Potentially Infectious Materials

- Any unfixed tissue or organ (other than intact skin) from a human (living or dead)
- HIV-containing cell or tissue cultures, organ cultures, and HIV, HBV or HCV-containing culture medium or other solutions

(cont'd)

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Other Potentially Infectious Materials

- Any body fluid visibly contaminated with blood
- All body fluids in situations where it is difficult or impossible to differentiate between body fluids

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What is not OPIM?

- Tears
- Urine
- Vomit
- Sputum
- Feces
- Sweat
- Saliva not from dental procedures

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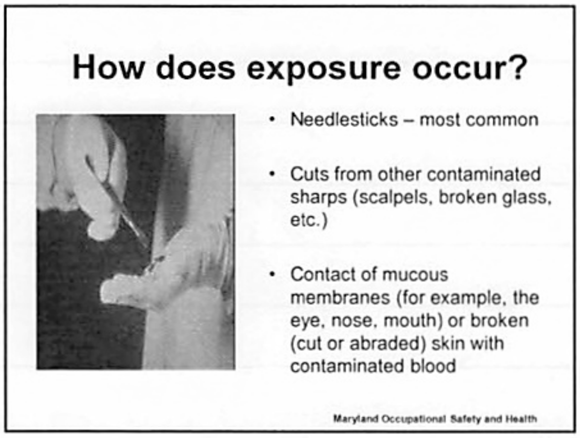

How does exposure occur?

- Needlesticks – most common
- Cuts from other contaminated sharps (scalpels, broken glass, etc.)
- Contact of mucous membranes (for example, the eye, nose, mouth) or broken (cut or abraded) skin with contaminated blood

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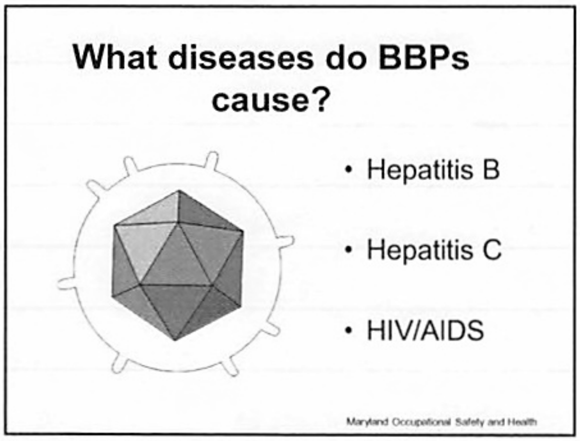

What diseases do BBPs cause?

- Hepatitis B
- Hepatitis C
- HIV/AIDS

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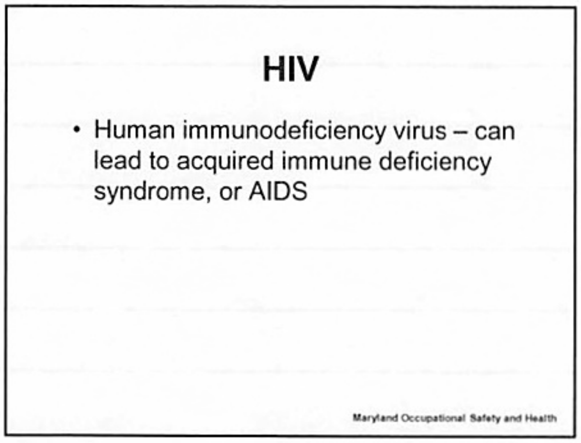

HIV

- Human immunodeficiency virus – can lead to acquired immune deficiency syndrome, or AIDS

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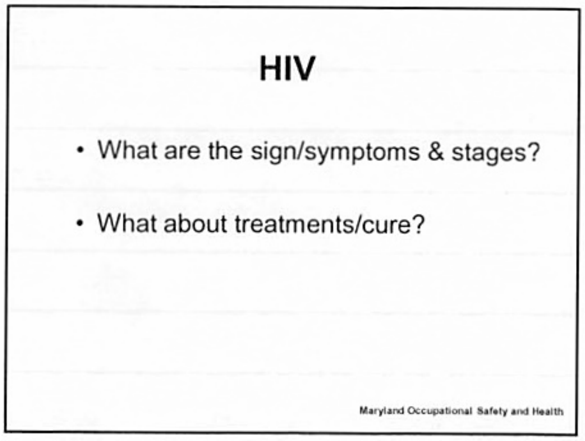

HIV

- What are the sign/symptoms & stages?
- What about treatments/cure?

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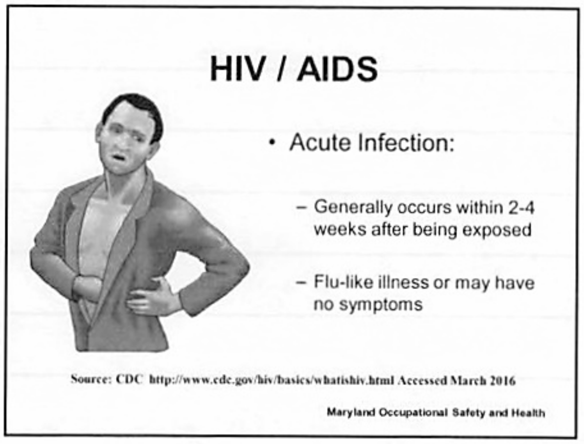

HIV / AIDS

- Acute Infection:
  - Generally occurs within 2-4 weeks after being exposed
  - Flu-like illness or may have no symptoms

Source: CDC http://www.cdc.gov/hiv/basics/whatishiv.html Accessed March 2016

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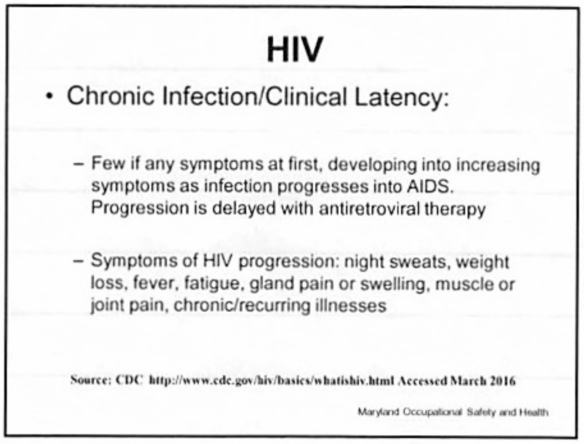

HIV

- Chronic Infection/Clinical Latency:
  - Few if any symptoms at first, developing into increasing symptoms as infection progresses into AIDS. Progression is delayed with antiretroviral therapy
  - Symptoms of HIV progression: night sweats, weight loss, fever, fatigue, gland pain or swelling, muscle or joint pain, chronic/recurring illnesses

Source: CDC http://www.cdc.gov/hiv/basics/whatishiv.html Accessed March 2016

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HIV

- Acquired Immune Deficiency Syndrome (AIDS):
  - Compromised immune system, vulnerable to infections and infection-related cancers
  - CD4 levels less than 200 cells/mm³ and/or develop certain opportunistic illnesses
  - People with AIDS can have a high viral load and be very infectious.

Source: CDC http://www.cdc.gov/hiv/basics/whatishiv.html Accessed March 2016

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HIV

- An estimated 1.2 million people in the U.S are living with HIV infection
- About 50,000 people are newly infected with HIV each year
- 13% are unaware of their infection.

Source: CDC http://www.cdc.gov/hiv/basics/statistics.html Accessed: March 2016

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Maryland is among the 10 leading states or territories reporting the highest rate of HIV infections

Estimated Rates (per 100,000) of HIV Diagnoses, Adults and Adolescents in 2014

1. District of Columbia	66.9
2. Louisiana	36.6
3. Florida	31.3
4. Maryland	**27.7**
5. U.S. Virgin Islands	27.4
6. Georgia	27.0
7. New York	22.8
8. Puerto Rico	22.7
9. Texas	22.1
10. Mississippi	21.0
United States	**16.5**

Source: CDC http://gis.cdc.gov/grasp/nchhstpatlas/main.html?value=atlas Accessed March 2016

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HIV Treatment

- No cure, treat with medication therapy
- Antiretroviral therapies are now more effective, less toxic, simpler to administer
- Early diagnosis and treatment are key

Source: CDC http://www.cdc.gov/hiv/basics/livingwithhiv/treatment.html Accessed March 2016

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HIV – Occupational Risk of Transmission

- As of December 31, 2013, 58 confirmed occupational transmissions of HIV and 150 possible transmissions had been reported in the United States, most prior to 1999.
- Health care workers who are exposed to a needlestick involving HIV-infected blood at work have a 0.23% risk of becoming infected. In other words, 2.3 of every 1,000 such injuries, if untreated, will result in infection. Risk of exposure due to splashes with body fluids are even lower risk.

Source: CDC http://www.cdc.gov/hiv/workplace/occupational.html Accessed: March 2016

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Hepatitis B

- Hepatitis B virus can cause acute liver inflammation, chronic liver disease, cirrhosis, liver cancer, and death
- What are the signs/symptoms & types?
- What about treatments/cure?

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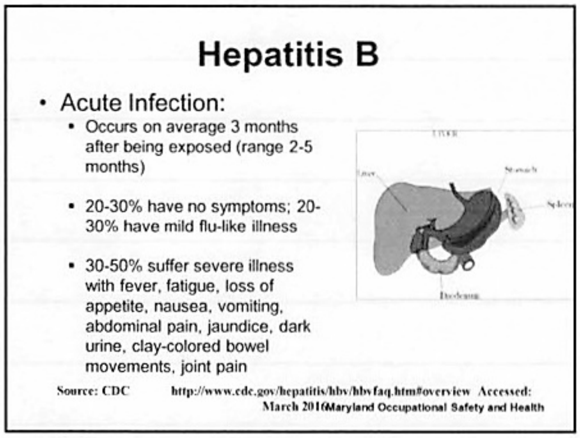
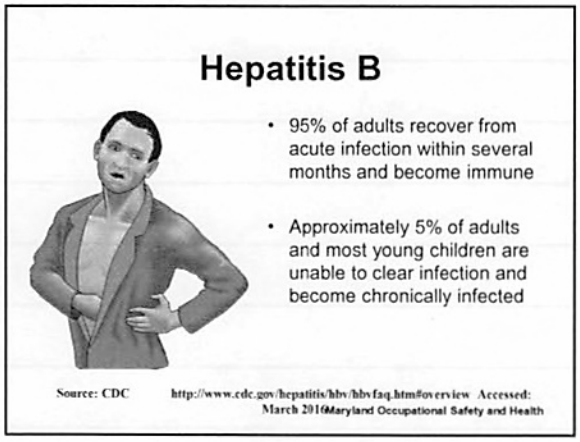

LIVER
Liver
Stomach
Splee
Duodenum

Hepatitis B

- Acute Infection:
  - Occurs on average 3 months after being exposed (range 2-5 months)
  - 20-30% have no symptoms; 20-30% have mild flu-like illness
  - 30-50% suffer severe illness with fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, jaundice, dark urine, clay-colored bowel movements, joint pain

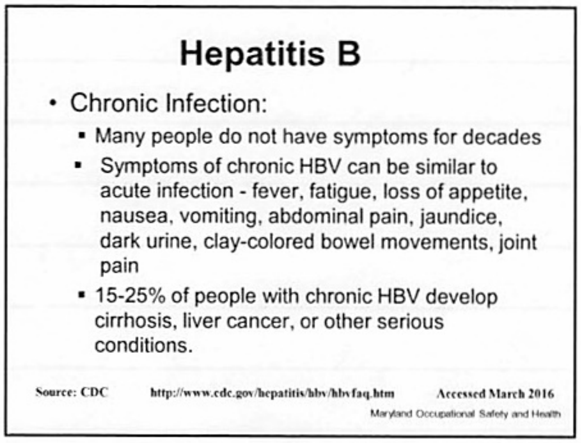
Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#overview Accessed: March 2016 Maryland Occupational Safety and Health



Hepatitis B

- 95% of adults recover from acute infection within several months and become immune
- Approximately 5% of adults and most young children are unable to clear infection and become chronically infected

Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#overview Accessed: March 2016 Maryland Occupational Safety and Health



Hepatitis B

- Chronic Infection:
  - Many people do not have symptoms for decades
  - Symptoms of chronic HBV can be similar to acute infection - fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, jaundice, dark urine, clay-colored bowel movements, joint pain
  - 15-25% of people with chronic HBV develop cirrhosis, liver cancer, or other serious conditions.

Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm Accessed March 2016

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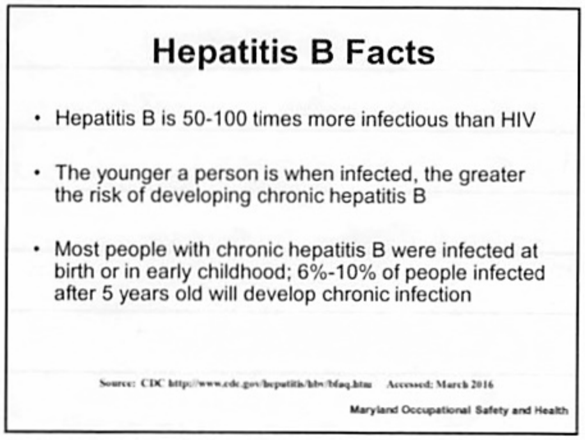

Hepatitis B Facts

- Hepatitis B is 50-100 times more infectious than HIV
- The younger a person is when infected, the greater the risk of developing chronic hepatitis B
- Most people with chronic hepatitis B were infected at birth or in early childhood; 6%-10% of people infected after 5 years old will develop chronic infection

Source: CDC http://www.cdc.gov/hepatitis/hbv/bfaq.htm Accessed: March 2016

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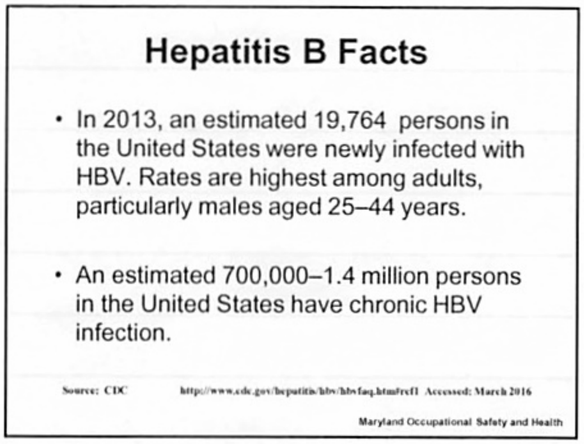

Hepatitis B Facts

- In 2013, an estimated 19,764 persons in the United States were newly infected with HBV. Rates are highest among adults, particularly males aged 25–44 years.
- An estimated 700,000–1.4 million persons in the United States have chronic HBV infection.

Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#ref1 Accessed: March 2016

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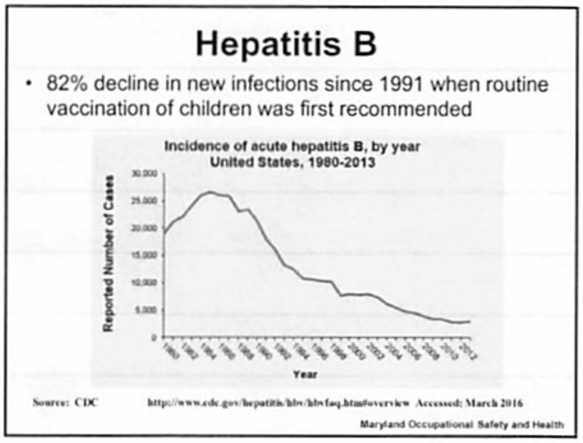

Hepatitis B

- 82% decline in new infections since 1991 when routine vaccination of children was first recommended

Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#overview Accessed: March 2016

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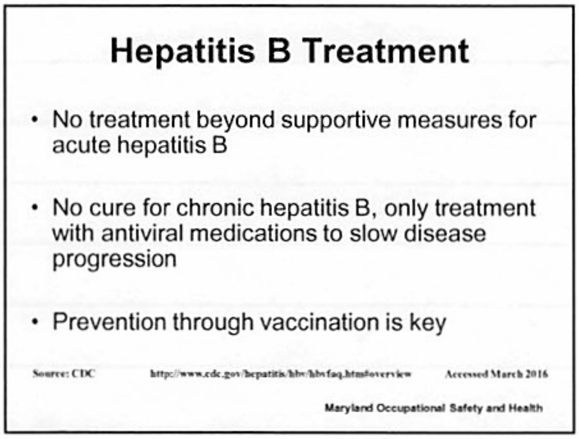

Hepatitis B Treatment

- No treatment beyond supportive measures for acute hepatitis B
- No cure for chronic hepatitis B, only treatment with antiviral medications to slow disease progression
- Prevention through vaccination is key

Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#overview Accessed March 2016

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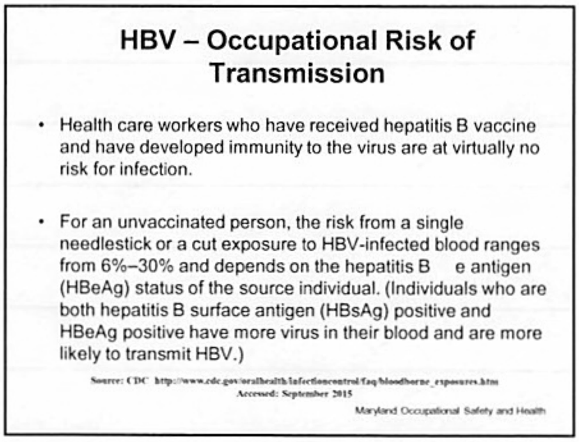

HBV – Occupational Risk of Transmission

- Health care workers who have received hepatitis B vaccine and have developed immunity to the virus are at virtually no risk for infection.
- For an unvaccinated person, the risk from a single needlestick or a cut exposure to HBV-infected blood ranges from 6%–30% and depends on the hepatitis B e antigen (HBeAg) status of the source individual. (Individuals who are both hepatitis B surface antigen (HBsAg) positive and HBeAg positive have more virus in their blood and are more likely to transmit HBV.)

Source: CDC http://www.cdc.gov/oralhealth/infectioncontrol/faq/bloodborne_exposures.htm
Accessed: September 2015

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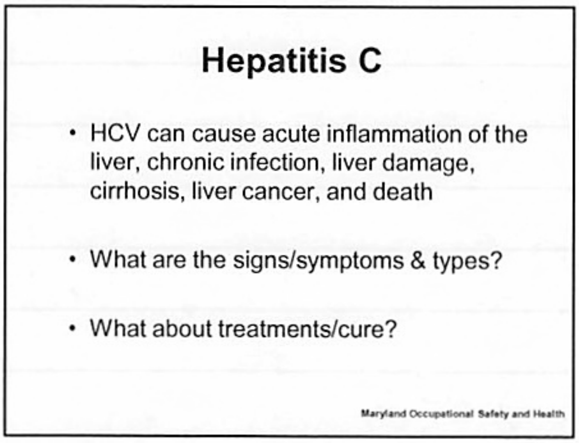

Hepatitis C

- HCV can cause acute inflammation of the liver, chronic infection, liver damage, cirrhosis, liver cancer, and death
- What are the signs/symptoms & types?
- What about treatments/cure?

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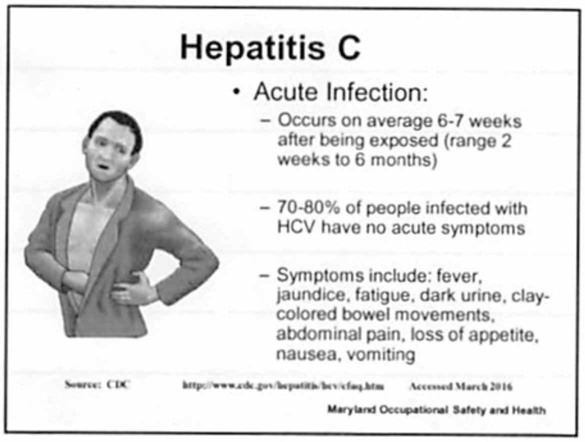

Hepatitis C

- Acute Infection:
  - Occurs on average 6-7 weeks after being exposed (range 2 weeks to 6 months)
  - 70-80% of people infected with HCV have no acute symptoms
  - Symptoms include: fever, jaundice, fatigue, dark urine, clay-colored bowel movements, abdominal pain, loss of appetite, nausea, vomiting

Source: CDC http://www.cdc.gov/hepatitis/hcv/cfaq.htm Accessed March 2016

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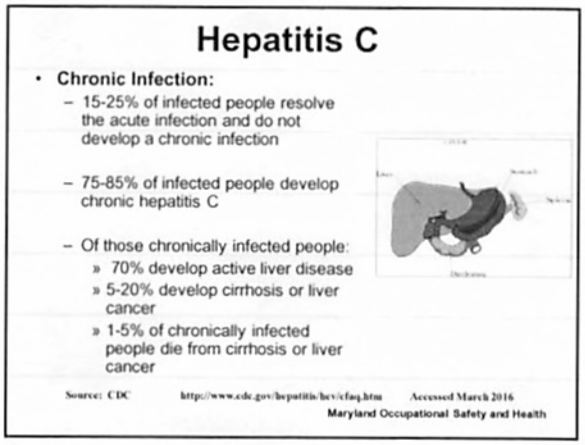

Hepatitis C

- Chronic Infection:
  - 15-25% of infected people resolve the acute infection and do not develop a chronic infection
  - 75-85% of infected people develop chronic hepatitis C
  - Of those chronically infected people:
    - » 70% develop active liver disease
    - » 5-20% develop cirrhosis or liver cancer
    - » 1-5% of chronically infected people die from cirrhosis or liver cancer

Source: CDC http://www.cdc.gov/hepatitis/hcv/cfaq.htm Accessed March 2016

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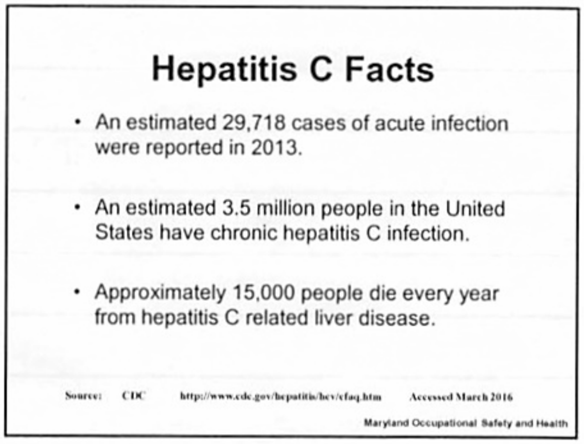

Hepatitis C Facts

- An estimated 29,718 cases of acute infection were reported in 2013.
- An estimated 3.5 million people in the United States have chronic hepatitis C infection.
- Approximately 15,000 people die every year from hepatitis C related liver disease.

Source: CDC http://www.cdc.gov/hepatitis/hcv/cfaq.htm Accessed March 2016

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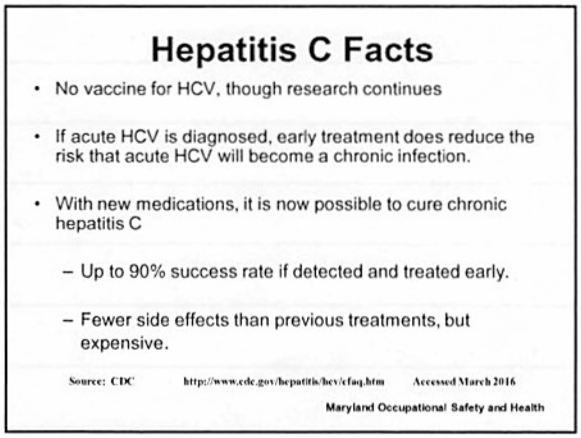

Hepatitis C Facts

- No vaccine for HCV, though research continues
- If acute HCV is diagnosed, early treatment does reduce the risk that acute HCV will become a chronic infection.
- With new medications, it is now possible to cure chronic hepatitis C
  - Up to 90% success rate if detected and treated early.
  - Fewer side effects than previous treatments, but expensive.

Source: CDC http://www.cdc.gov/hepatitis/hcv/cfaq.htm Accessed March 2016

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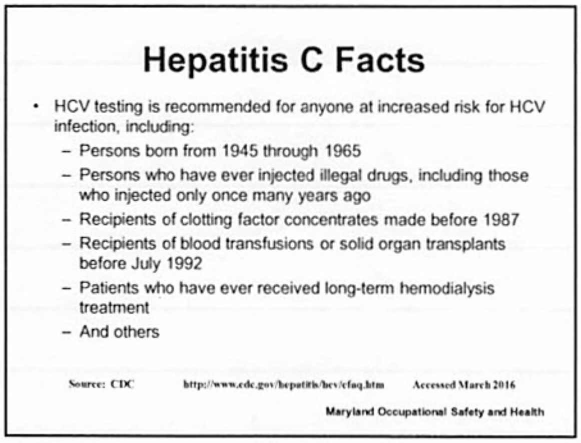

Hepatitis C Facts

- HCV testing is recommended for anyone at increased risk for HCV infection, including:
  - Persons born from 1945 through 1965
  - Persons who have ever injected illegal drugs, including those who injected only once many years ago
  - Recipients of clotting factor concentrates made before 1987
  - Recipients of blood transfusions or solid organ transplants before July 1992
  - Patients who have ever received long-term hemodialysis treatment
  - And others

Source: CDC http://www.cdc.gov/hepatitis/hcv/cfaq.htm Accessed March 2016

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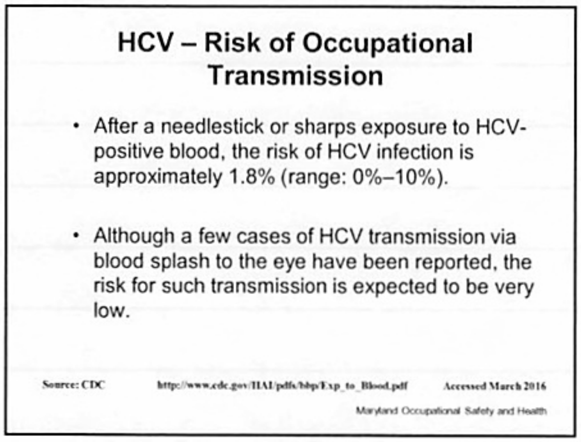

HCV – Risk of Occupational Transmission

- After a needlestick or sharps exposure to HCV-positive blood, the risk of HCV infection is approximately 1.8% (range: 0%–10%).
- Although a few cases of HCV transmission via blood splash to the eye have been reported, the risk for such transmission is expected to be very low.

Source: CDC http://www.cdc.gov/HAI/pdfs/bbp/Exp_to_Blood.pdf Accessed March 2016

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What's The Risk?

- HIV does not live well or long outside the body, especially when exposed to air. Risk of contracting HIV from a contaminated needle is approximately 0.3%.
- HBV can survive at least 7 days outside the body and still be capable of causing infection; dried blood can still be infectious. Risk of contracting HBV from a contaminated needle is up to 30%.
- HCV can survive outside the body at room temperature for several days up to several weeks. Risk of contracting HCV from a contaminated needle is about 2% (range: 0%–10%).

Source: CDC
http://www.cdc.gov/hepatitis/hcv/hcvfaq.htm#section1
http://www.cdc.gov/hiv/workplace/occupational.html

Accessed March 2016
http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm

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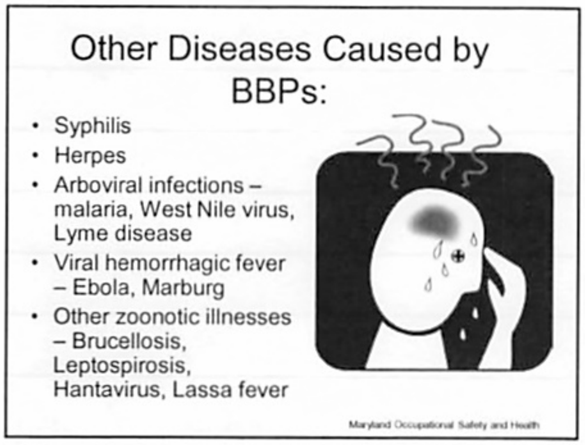

Other Diseases Caused by BBPs:

- Syphilis
- Herpes
- Arboviral infections – malaria, West Nile virus, Lyme disease
- Viral hemorrhagic fever – Ebola, Marburg
- Other zoonotic illnesses – Brucellosis, Leptospirosis, Hantavirus, Lassa fever

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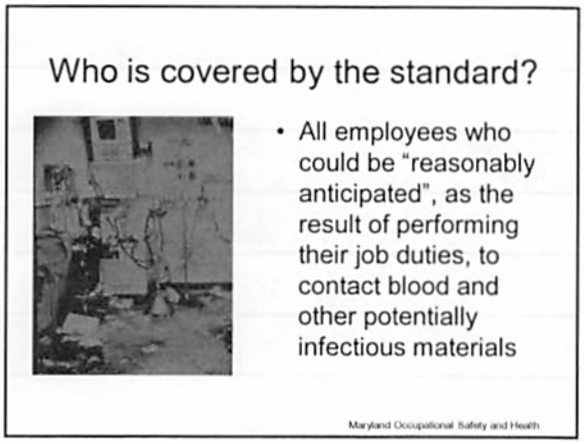

Who is covered by the standard?

- All employees who could be "reasonably anticipated", as the result of performing their job duties, to contact blood and other potentially infectious materials

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Workers Who are at Risk

- Physicians, nurses and emergency room personnel
- Orderlies, housekeeping personnel, and laundry workers
- Dentists and other dental workers
- Laboratory and blood bank technologists and technicians
- Medical examiners
- Morticians
- Law enforcement personnel, Firefighters, EMS responders
- Anyone providing first-response/first aid medical care
- Medical waste treatment employees
- Home healthcare workers
- **MOSH S&H Consultants and Compliance Officers**

MOSH Compliance Officer (CSHO) Potential For Occupational Exposure

- Investigating incidents which involve trauma to persons e.g. accidents, fatality/catastrophe
- Compliance and consultation inspections in mortuaries/morgues, hospitals, labs, waste handling, laundry, medical/dental practices, other medical/healthcare patient care and research facilities

Employer Responsibilities

- Make available a copy of the standard and the exposure control plan
- Provide for hygiene, housekeeping, PPE, engineering controls, waste disposal, signs/labels
- Make hepatitis B vaccination and post-exposure evaluation & treatment available
- Provide training initially & annually
- Maintain medical & training records

BBP Standard:
29 CFR 1910.1030

- Standard available in print (ManComm books) or online at www.osha.gov
  - OSHA Laws & Regs → General Industry → 1910 Subpart Z – Toxic and Hazardous Substances → 1910.1030
- Standard also available in MOSH publication "Bloodborne Pathogens Exposure Control Plan Compliance Guide"

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Exposure Control Plan

- A copy of the MOSH Bloodborne Pathogen Exposure Control Plan can be obtained from:
  - Sharon Fried - 410-767-2376 or sharon.fried@maryland.gov

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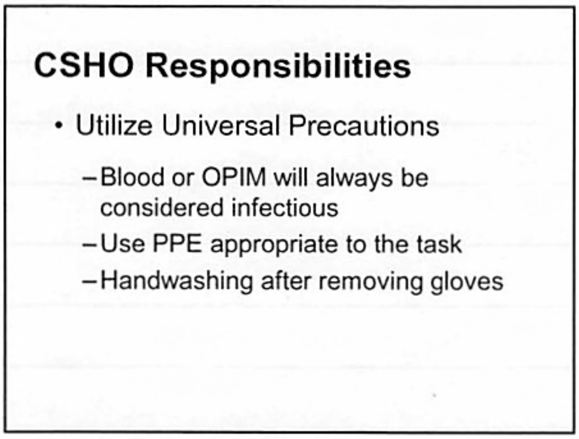
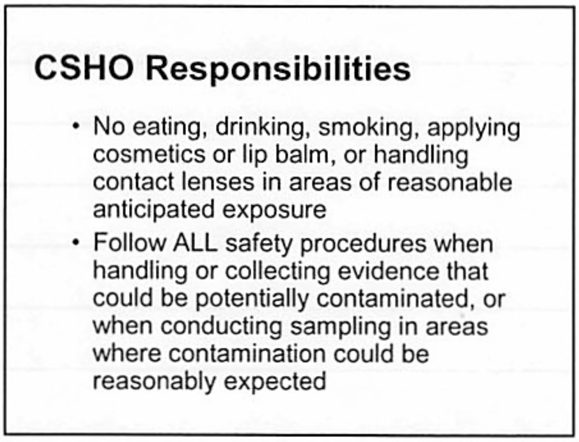
CSHO Responsibilities

- Recognize what surfaces could be contaminated, as well as the potential for spray/spatter/splash and contacting contaminated sharps
- Avoid contacting contaminated surfaces and handling contaminated objects unless absolutely necessary – when in doubt contact your supervisor



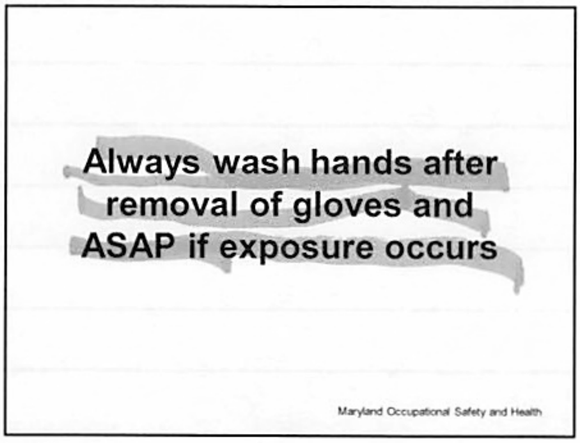
CSHO Responsibilities

- Utilize Universal Precautions
  - Blood or OPIM will always be considered infectious
  - Use PPE appropriate to the task
  - Handwashing after removing gloves



CSHO Responsibilities

- No eating, drinking, smoking, applying cosmetics or lip balm, or handling contact lenses in areas of reasonable anticipated exposure
- Follow ALL safety procedures when handling or collecting evidence that could be potentially contaminated, or when conducting sampling in areas where contamination could be reasonably expected



Always wash hands after removal of gloves and ASAP if exposure occurs

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Handwashing

- Must be performed after hands have been contaminated with blood or OPIM or immediately after exposure
- Must use tepid running water, soap, and paper towels

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Alcohol-Based Cleansers

- Acceptable only if:
  - There was no contact with blood or OPIM; or
  - There are no handwashing facilities available where contact with blood or OPIM occurred e.g. remote sites, until proper handwashing facilities can be utilized

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Personal Protective Equipment

- Gloves
- Coveralls/body suits with hoods
- Shoe covers
- Safety glasses & safety goggles
- Faceshields
- Lab coats
- Surgical face masks

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Personal Protective Equipment

- When doffing, remove carefully to prevent cross-contamination
- Remove all PPE prior to leaving work area
- Procedures for removing, containerizing, and handling contaminated PPE and other contaminated items for cleaning/ laundering/ disposing

Housekeeping

- Cleaning disinfectant - diluted bleach solution or other appropriate disinfectant
- All contaminated surfaces must be disinfected
- All waste disposed of at facility or collected in 2 mil trash bags and labeled with biohazard symbols
- Disinfectant, waste disposal materials, and PPE can be obtained from supervisor or equipment manager

Consult With Your Supervisor

- Prior to:
  - Visiting any HIV, HCV, HBV research lab or production facility
  - Conducting personal sampling in contaminated areas
  - Collecting evidence that may be contaminated

Hepatitis B Vaccination

Hepatitis B Vaccine

- Made available within 10 days of initial assignment and after training completed
- Accept and obtain the vaccine, provide records of previous vaccination, or decline by signing the declination form
- Option to receive the vaccine at any time after signing the declination form

Hepatitis B Vaccine

- Available since 1982 and part of the recommended childhood vaccination schedule since 1991
- Vaccine is a series of three shots given over a six-month period
- More information available at http://www.cdc.gov/vaccines/vpd-vac/hepb/

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Hepatitis B Vaccination - FAQ

- Is the Hepatitis B vaccine series effective?
  - Yes, the Hepatitis B vaccine is very effective at preventing Hepatitis B virus infection. After receiving all three doses, Hepatitis B vaccine provides greater than 90% protection to infants, children, and adults immunized before being exposed to the virus.

Source: CDC http://www.cdc.gov/vaccines/vpd-vac/hepb/ Accessed April 2016

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Hepatitis B Vaccination - FAQ

- Is the Hepatitis B vaccine safe?
  - Yes. Soreness at the injection site is the most common side effect reported. As with any medicine, there are very small risks that a serious problem could occur after getting the vaccine. However, the potential risks associated with Hepatitis B are much greater than the risks the vaccine poses. Since the vaccine became available in 1982, more than 100 million people have received Hepatitis B vaccine in the United States and no serious side effects have been reported.

Source: CDC http://www.cdc.gov/vaccines/vpd-vac/hepb/ Accessed April 2016

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Hepatitis B Vaccination - FAQ

- Is it harmful to have an extra dose of Hepatitis B vaccine or to repeat the entire Hepatitis B vaccine series?
  - No, getting extra doses of Hepatitis B vaccine is not harmful.

Source: CDC http://www.cdc.gov/vaccines/vpd-vac/hepb/ Accessed April 2016

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Hepatitis B Vaccination - FAQ

- Who should not receive the Hepatitis B vaccine?
  - The Hepatitis B vaccine is not recommended for people who have had serious allergic reactions to a prior dose of Hepatitis B vaccine or to any part of the vaccine. Also, it not recommended for anyone who is allergic to yeast because yeast is used when making the vaccine. Tell your doctor if you have any severe allergies.

Source: CDC http://www.cdc.gov/vaccines/vpd-vac/hepb/ Accessed April 2016

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Hepatitis B Vaccination - FAQ

- Are booster doses of Hepatitis B vaccine necessary?
  - It depends. A "booster" dose of Hepatitis B vaccine is a dose that increases or extends the effectiveness of the vaccine. Booster doses are recommended only for hemodialysis patients and can be considered for other people with a weakened immune system. Booster doses are not recommended for persons with normal immune status who have been fully vaccinated.

Source: CDC http://www.cdc.gov/vaccines/vpd-vac/hepb/ Accessed April 2016

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Hepatitis B Vaccine

- Vaccine Information Statement
  - http://www.cdc.gov/vaccines/hcp/vis/vis-statements/hep-b.pdf
- Hepatitis B Declination Form
  - https://www.osha.gov/SLTC/etools/hospital/hazards/bbp/declination.html

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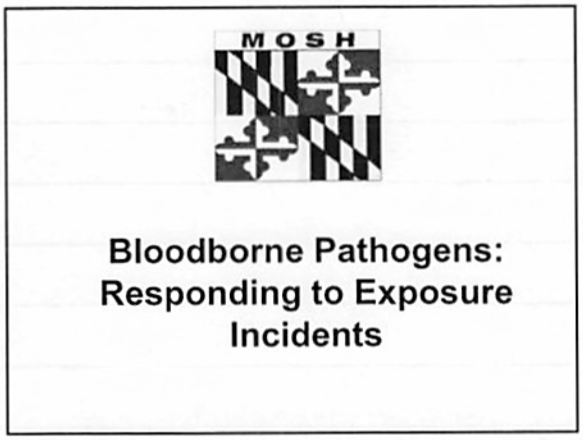
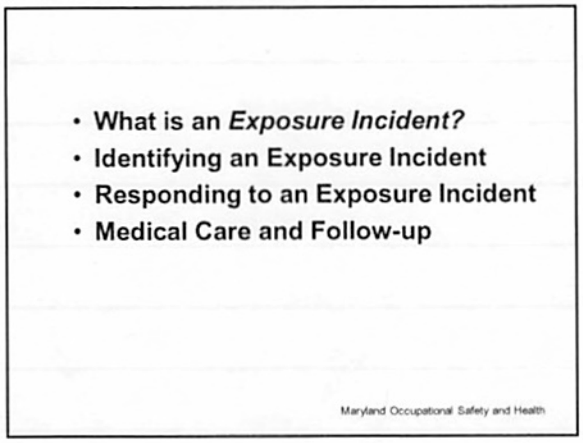


MOSH

Bloodborne Pathogens: Responding to Exposure Incidents



- What is an *Exposure Incident?*
- Identifying an Exposure Incident
- Responding to an Exposure Incident
- Medical Care and Follow-up

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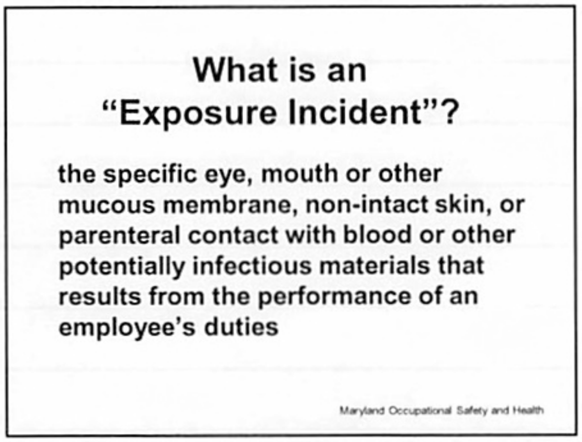

What is an "Exposure Incident"?

the specific eye, mouth or other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties

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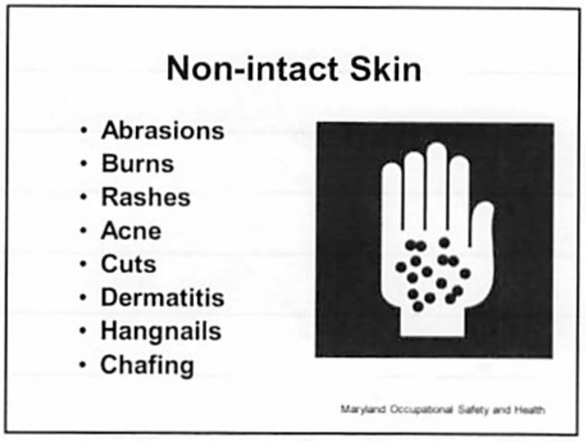

Non-intact Skin

- Abrasions
- Burns
- Rashes
- Acne
- Cuts
- Dermatitis
- Hangnails
- Chafing

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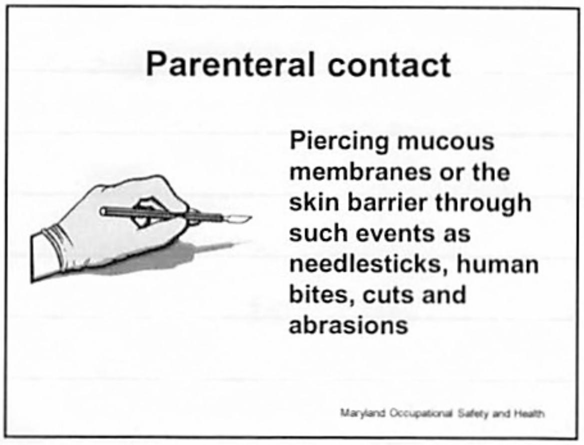

Parenteral contact

Piercing mucous membranes or the skin barrier through such events as needlesticks, human bites, cuts and abrasions

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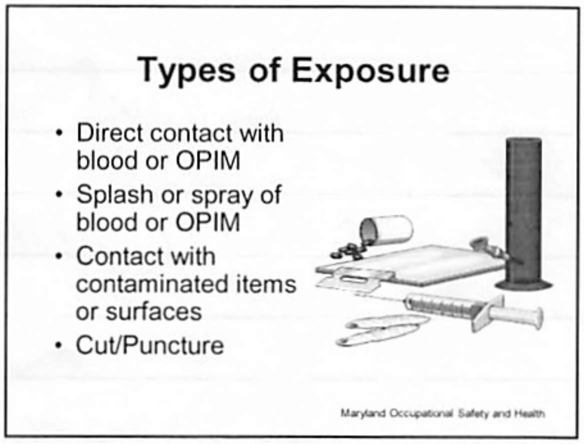

Types of Exposure

- Direct contact with blood or OPIM
- Splash or spray of blood or OPIM
- Contact with contaminated items or surfaces
- Cut/Puncture

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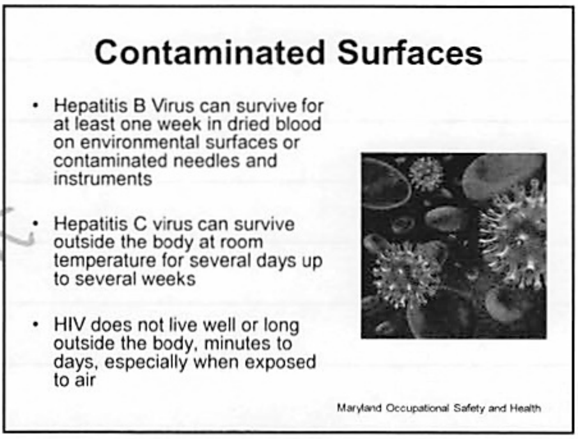

Contaminated Surfaces

- Hepatitis B Virus can survive for at least one week in dried blood on environmental surfaces or contaminated needles and instruments
- Hepatitis C virus can survive outside the body at room temperature for several days up to several weeks
- HIV does not live well or long outside the body, minutes to days, especially when exposed to air

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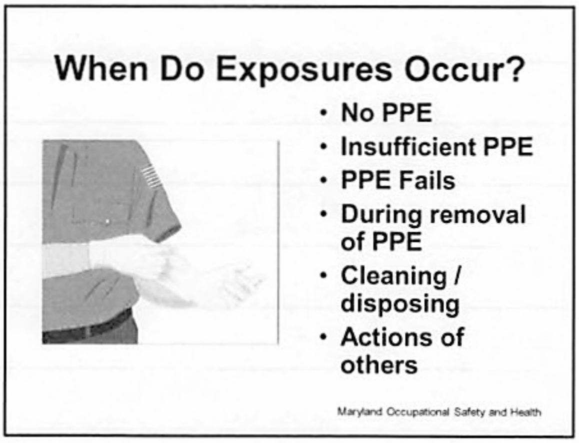

When Do Exposures Occur?

- No PPE
- Insufficient PPE
- PPE Fails
- During removal of PPE
- Cleaning / disposing
- Actions of others

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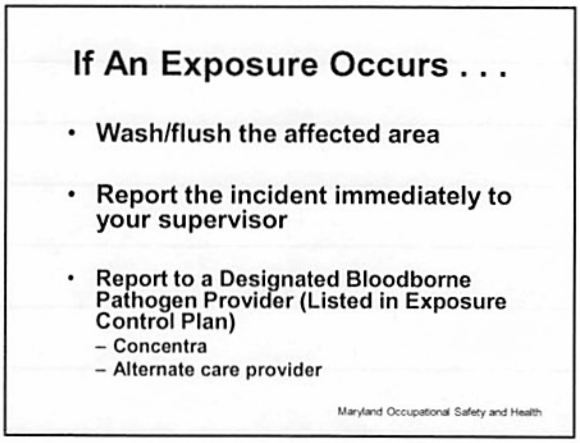

If An Exposure Occurs . . .

- Wash/flush the affected area
- Report the incident immediately to your supervisor
- Report to a Designated Bloodborne Pathogen Provider (Listed in Exposure Control Plan)
  - Concentra
  - Alternate care provider

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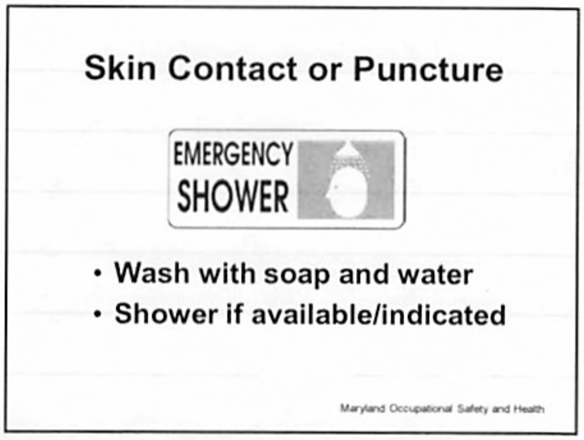

Skin Contact or Puncture

EMERGENCY
SHOWER

- Wash with soap and water
- Shower if available/indicated

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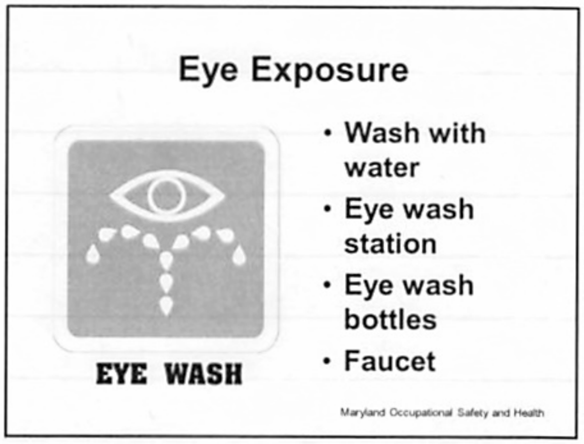

Eye Exposure

- Wash with water
- Eye wash station
- Eye wash bottles
- Faucet

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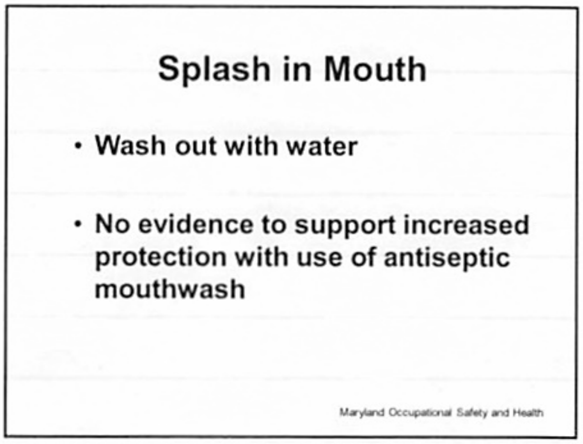

Splash in Mouth

- Wash out with water
- No evidence to support increased protection with use of antiseptic mouthwash

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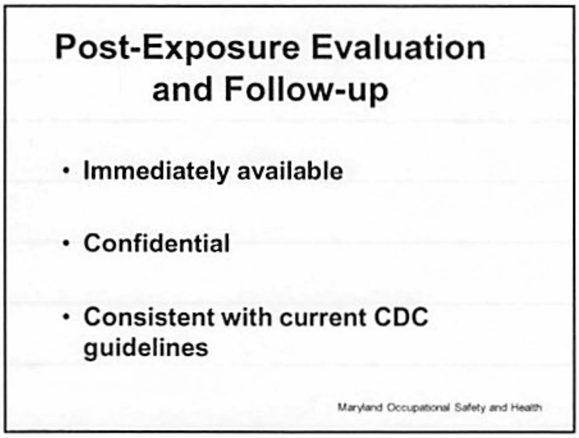

Post-Exposure Evaluation and Follow-up

- **Immediately available**
- **Confidential**
- **Consistent with current CDC guidelines**

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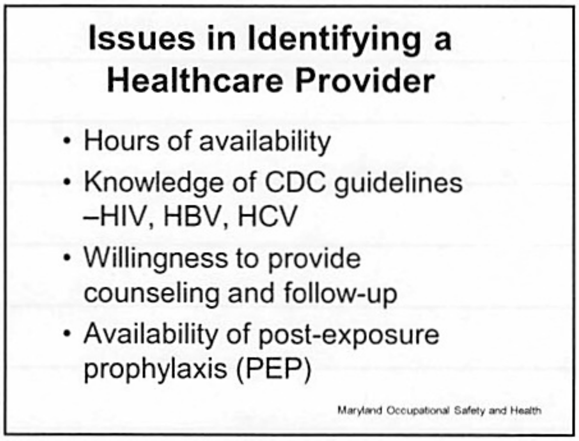

Issues in Identifying a Healthcare Provider

- Hours of availability
- Knowledge of CDC guidelines
  - HIV, HBV, HCV
- Willingness to provide counseling and follow-up
- Availability of post-exposure prophylaxis (PEP)

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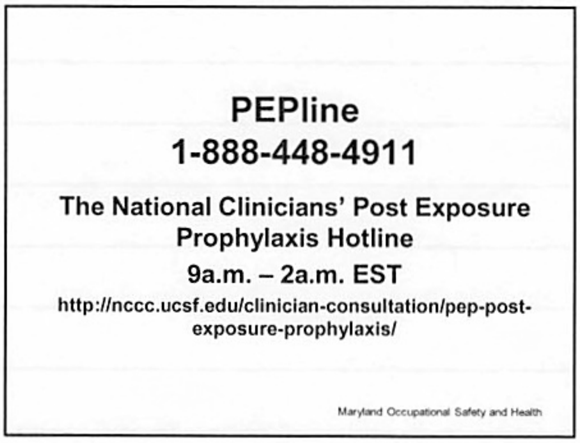

PEPline
1-888-448-4911

The National Clinicians' Post Exposure Prophylaxis Hotline

9a.m. – 2a.m. EST

http://nccc.ucsf.edu/clinician-consultation/pep-post-exposure-prophylaxis/

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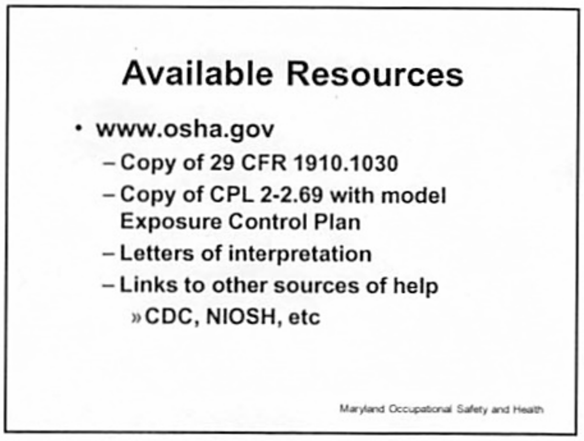


Available Resources

- www.osha.gov
  - Copy of 29 CFR 1910.1030
  - Copy of CPL 2-2.69 with model Exposure Control Plan
  - Letters of interpretation
  - Links to other sources of help
    - CDC, NIOSH, etc

Maryland Occupational Safety and Health

VACCINE INFORMATION STATEMENT

Hepatitis B Vaccine

What You Need to Know

Many Vaccine Information Statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1 What is hepatitis B?

Hepatitis B is a serious infection that affects the liver. It is caused by the hepatitis B virus.

- In 2009, about 38,000 people became infected with hepatitis B.
- Each year about 2,000 to 4,000 people die in the United States from cirrhosis or liver cancer caused by hepatitis B.

Hepatitis B can cause:

Acute (short-term) illness. This can lead to:

- loss of appetite
- diarrhea and vomiting
- tiredness
- jaundice (yellow skin or eyes)
- pain in muscles, joints, and stomach

Acute illness, with symptoms, is more common among adults. Children who become infected usually do not have symptoms.

Chronic (long-term) infection. Some people go on to develop chronic hepatitis B infection. Most of them do not have symptoms, but the infection is still very serious, and can lead to:

- liver damage (cirrhosis)
- liver cancer
- death

Chronic infection is more common among infants and children than among adults. People who are chronically infected can spread hepatitis B virus to others, even if they don't look or feel sick. Up to 1.4 million people in the United States may have chronic hepatitis B infection.

Hepatitis B virus is easily spread through contact with the blood or other body fluids of an infected person. People can also be infected from contact with a contaminated object, where the virus can live for up to 7 days.

- A baby whose mother is infected can be infected at birth;
- Children, adolescents, and adults can become infected by:
  - contact with blood and body fluids through breaks in the skin such as bites, cuts, or sores;
  - contact with objects that have blood or body fluids on them such as toothbrushes, razors, or monitoring and treatment devices for diabetes;
  - having unprotected sex with an infected person;
  - sharing needles when injecting drugs;
  - being stuck with a used needle.

2 Hepatitis B vaccine: Why get vaccinated?

Hepatitis B vaccine can prevent hepatitis B, and the serious consequences of hepatitis B infection, including liver cancer and cirrhosis.

Hepatitis B vaccine may be given by itself or in the same shot with other vaccines.

Routine hepatitis B vaccination was recommended for some U.S. adults and children beginning in 1982, and for all children in 1991. Since 1990, new hepatitis B infections among children and adolescents have dropped by more than 95%—and by 75% in other age groups.

Vaccination gives long-term protection from hepatitis B infection, possibly lifelong.

3 Who should get hepatitis B vaccine and when?

Children and adolescents

- Babies normally get 3 doses of hepatitis B vaccine:

1st Dose:	Birth
2nd Dose:	1-2 months of age
3rd Dose:	6-18 months of age

Some babies might get 4 doses, for example, if a combination vaccine containing hepatitis B is used. (This is a single shot containing several vaccines.) The extra dose is not harmful.

- Anyone through 18 years of age who didn't get the vaccine when they were younger should also be vaccinated.

Adults

- All unvaccinated adults at risk for hepatitis B infection should be vaccinated. This includes:
  - sex partners of people infected with hepatitis B,
  - men who have sex with men,
  - people who inject street drugs,
  - people with more than one sex partner,
  - people with chronic liver or kidney disease,
  - people under 60 years of age with diabetes,
  - people with jobs that expose them to human blood or other body fluids,

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

- household contacts of people infected with hepatitis B,
  - residents and staff in institutions for the developmentally disabled,
  - kidney dialysis patients,
  - people who travel to countries where hepatitis B is common,
  - people with HIV infection.
- Other people may be encouraged by their doctor to get hepatitis B vaccine; for example, adults 60 and older with diabetes. Anyone else who wants to be protected from hepatitis B infection may get the vaccine.
- Pregnant women who are at risk for one of the reasons stated above should be vaccinated. Other pregnant women who want protection may be vaccinated.

Adults getting hepatitis B vaccine should get 3 doses—with the second dose given 4 weeks after the first and the third dose 5 months after the second. Your doctor can tell you about other dosing schedules that might be used in certain circumstances.

4 Who should not get hepatitis B vaccine?

- Anyone with a life-threatening allergy to yeast, or to any other component of the vaccine, should not get hepatitis B vaccine. Tell your doctor if you have any severe allergies.
- Anyone who has had a life-threatening allergic reaction to a previous dose of hepatitis B vaccine should not get another dose.
- Anyone who is moderately or severely ill when a dose of vaccine is scheduled should probably wait until they recover before getting the vaccine.

Your doctor can give you more information about these precautions.

Note: You might be asked to wait 28 days before donating blood after getting hepatitis B vaccine. This is because the screening test could mistake vaccine in the bloodstream (which is not infectious) for hepatitis B infection.

5 What are the risks from hepatitis B vaccine?

Hepatitis B is a very safe vaccine. Most people do not have any problems with it.

The vaccine contains non-infectious material, and cannot cause hepatitis B infection.

Some mild problems have been reported:

- Soreness where the shot was given (up to about 1 person in 4).
- Temperature of 99.9°F or higher (up to about 1 person in 15).

Severe problems are extremely rare. Severe allergic reactions are believed to occur about once in 1.1 million doses.

A vaccine, like any medicine, could cause a serious reaction. But the risk of a vaccine causing serious harm, or death, is extremely small. More than 100 million people in the United States have been vaccinated with hepatitis B vaccine.

6 What if there is a serious reaction?

What should I look for?

- Look for anything that concerns you, such as signs of a severe allergic reaction, very high fever, or behavior changes.

  Signs of a severe allergic reaction can include hives, swelling of the face and throat, difficulty breathing, a fast heartbeat, dizziness, and weakness. These would start a few minutes to a few hours after the vaccination.

What should I do?

- If you think it is a severe allergic reaction or other emergency that can't wait, call 9-1-1 or get the person to the nearest hospital. Otherwise, call your doctor.
- Afterward, the reaction should be reported to the Vaccine Adverse Event Reporting System (VAERS). Your doctor might file this report, or you can do it yourself through the VAERS web site at **www.vaers.hhs.gov**, or by calling **1-800-822-7967**.

VAERS is only for reporting reactions. They do not give medical advice.

7 The National Vaccine Injury Compensation Program

The National Vaccine Injury Compensation Program (VICP) is a federal program that was created to compensate people who may have been injured by certain vaccines.

Persons who believe they may have been injured by a vaccine can learn about the program and about filing a claim by calling **1-800-338-2382** or visiting the VICP website at **www.hrsa.gov/vaccinecompensation**.

8 How can I learn more?

- Ask your doctor.
- Call your local or state health department.
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call **1-800-232-4636 (1-800-CDC-INFO)** or
  - Visit CDC's website at **www.cdc.gov/vaccines**

Vaccine Information Statement (Interim)

Hepatitis B Vaccine

2/2/2012

42 U.S.C. § 300aa-26

Office Use Only

MOSH

Hepatitis B Vaccine Declination Form

Occupational Exposure to Bloodborne Pathogens

Facility Name: ____

I understand that due to my occupational exposure to blood or other potentially infectious materials (OPIM), I may be at risk of acquiring hepatitis B virus (HBV) infection.

I have been given the opportunity to be vaccinated with the hepatitis B vaccine, at no charge to myself.

However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If, in the future, I continue to have occupational exposure to blood or other potentially infectious materials, and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

☐ I have already received the hepatitis B vaccination series.

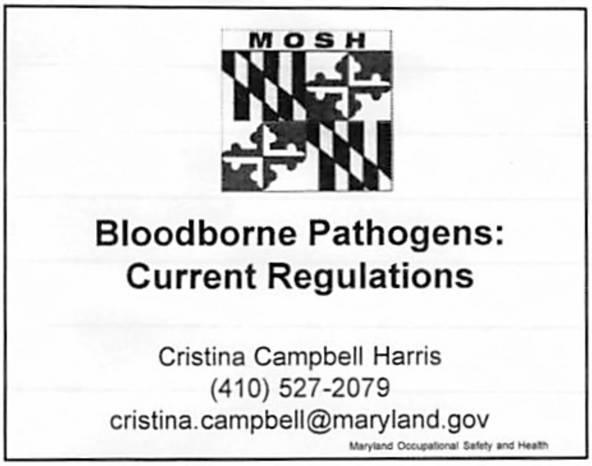
____
Employee's Name (Print)

____
Employee's Signature

____
Date

DLLR
Maryland Division of Labor and Industry
Occupational Safety
and Health (MOSH)

7/13/16

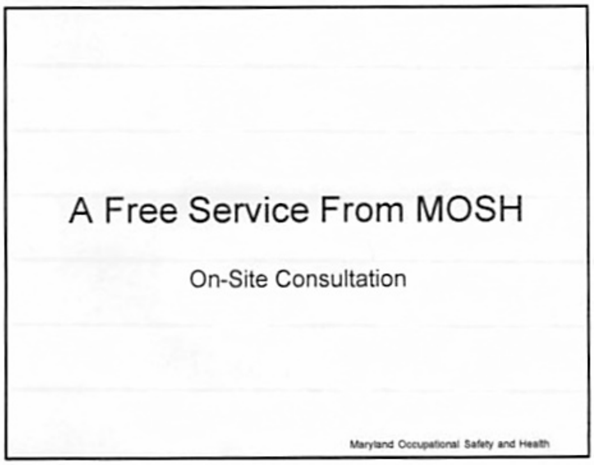


MOSH

Bloodborne Pathogens: Current Regulations

Cristina Campbell Harris
(410) 527-2079
cristina.campbell@maryland.gov

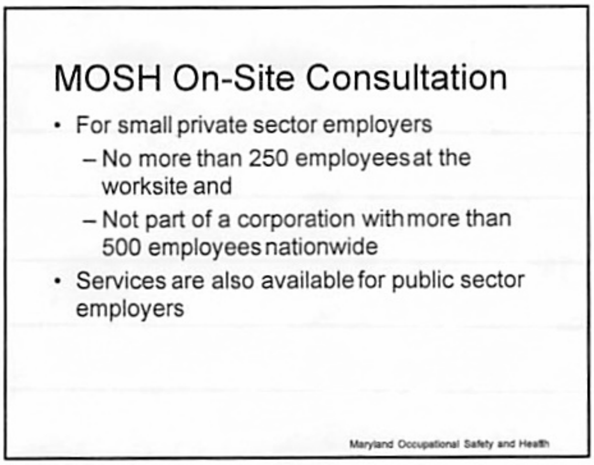
Maryland Occupational Safety and Health



A Free Service From MOSH

On-Site Consultation

Maryland Occupational Safety and Health



MOSH On-Site Consultation

- For small private sector employers
  - No more than 250 employees at the worksite and
  - Not part of a corporation with more than 500 employees nationwide
- Services are also available for public sector employers

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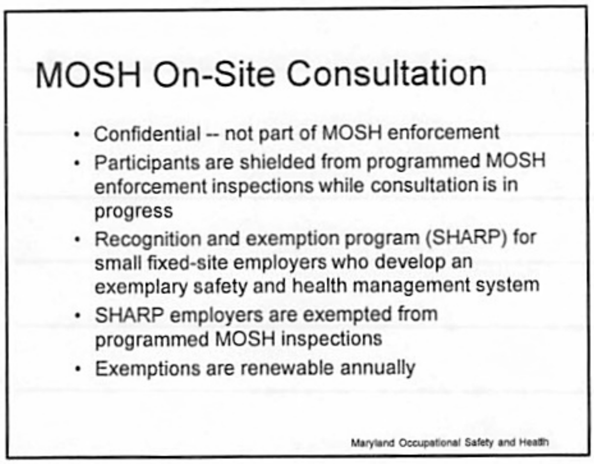
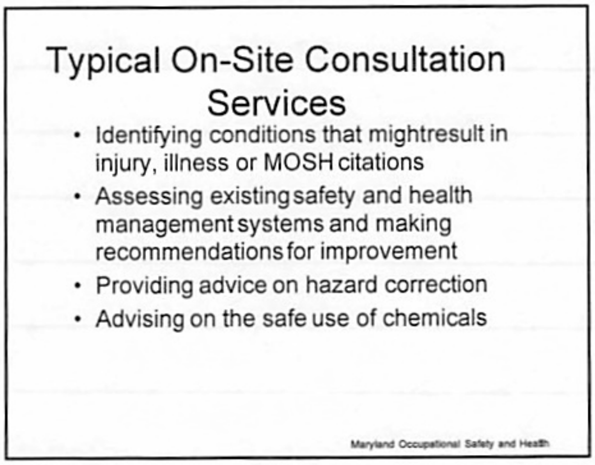


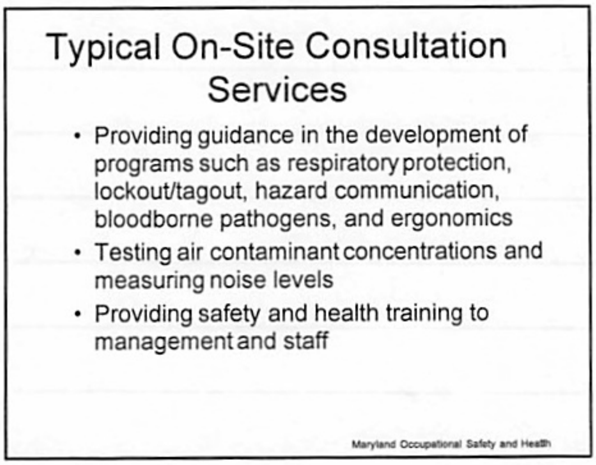
MOSH On-Site Consultation

- Confidential -- not part of MOSH enforcement
- Participants are shielded from programmed MOSH enforcement inspections while consultation is in progress
- Recognition and exemption program (SHARP) for small fixed-site employers who develop an exemplary safety and health management system
- SHARP employers are exempted from programmed MOSH inspections
- Exemptions are renewable annually



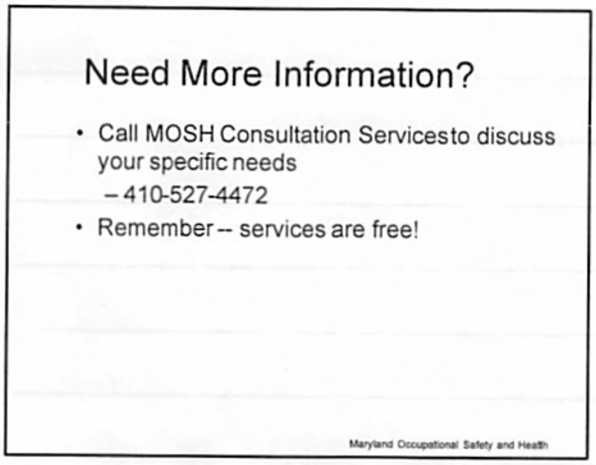
Typical On-Site Consultation Services

- Identifying conditions that might result in injury, illness or MOSH citations
- Assessing existing safety and health management systems and making recommendations for improvement
- Providing advice on hazard correction
- Advising on the safe use of chemicals



Typical On-Site Consultation Services

- Providing guidance in the development of programs such as respiratory protection, lockout/tagout, hazard communication, bloodborne pathogens, and ergonomics
- Testing air contaminant concentrations and measuring noise levels
- Providing safety and health training to management and staff



Need More Information?

- Call MOSH Consultation Services to discuss your specific needs
  - 410-527-4472
- Remember -- services are free!

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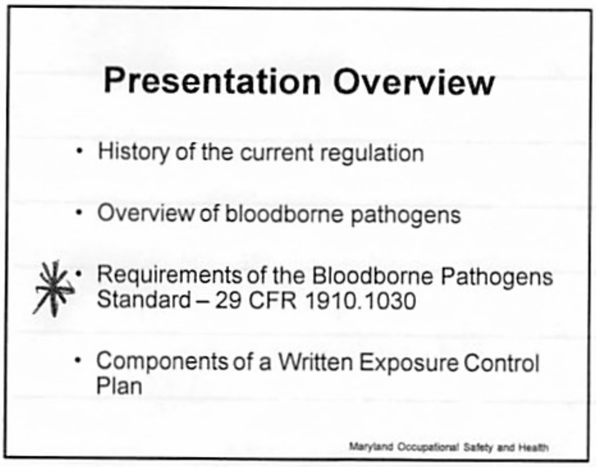

Presentation Overview

- History of the current regulation
- Overview of bloodborne pathogens
- ✱ Requirements of the Bloodborne Pathogens Standard – 29 CFR 1910.1030
- Components of a Written Exposure Control Plan

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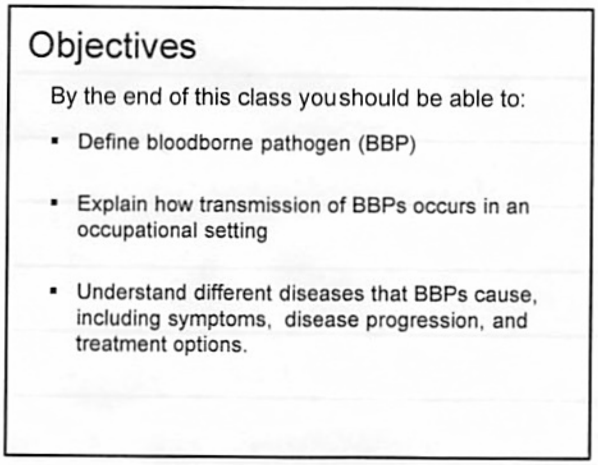

Objectives

By the end of this class you should be able to:

- Define bloodborne pathogen (BBP)
- Explain how transmission of BBPs occurs in an occupational setting
- Understand different diseases that BBPs cause, including symptoms, disease progression, and treatment options.

Objectives

By the end of this class you should be able to:

- Explain who is covered by the standard
- Describe ways to minimize risk
- Understand the requirements of the BBP standard
- Access additional resources

29 CFR 1910.1030

federal register
Part II
Department of Labor

- Occupational Exposure to Bloodborne Pathogens: Final Rule
- December 6, 1991
- January 18, 2001

Maryland Occupational Safety and Health

1991 to 2001 . . .

- Advancements in medical technology
- September 1998, OSHA's Request for Information (RFI) and subsequent findings
- November 1999, CPL 02-02-069 Enforcement Procedures developed
- November 2000, Needlestick Safety and Prevention Act – Revise the BBP standard
- 2001, Revised standard published and adopted

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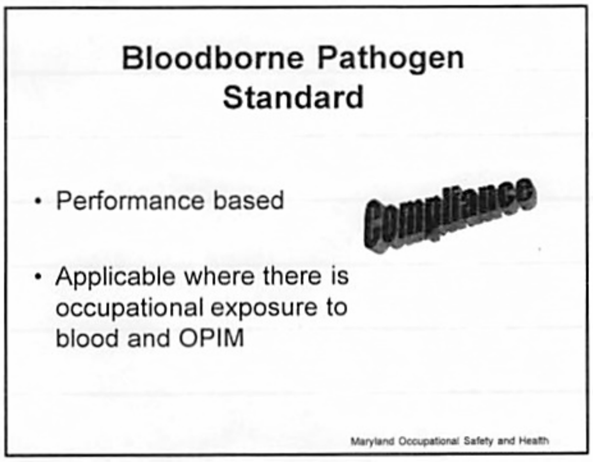

Bloodborne Pathogen Standard

- Performance based
- Applicable where there is occupational exposure to blood and OPIM

Compliance

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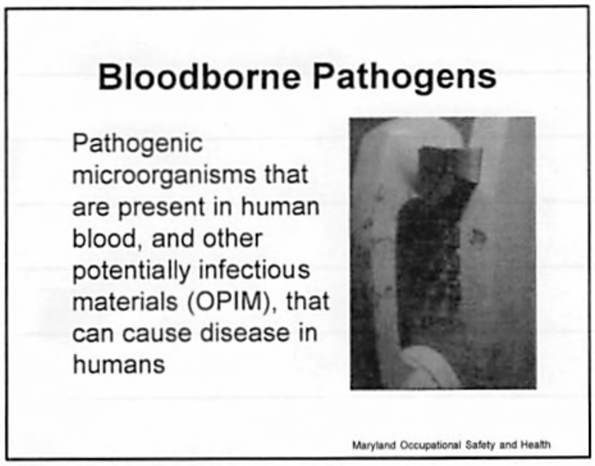

Bloodborne Pathogens

Pathogenic microorganisms that are present in human blood, and other potentially infectious materials (OPIM), that can cause disease in humans

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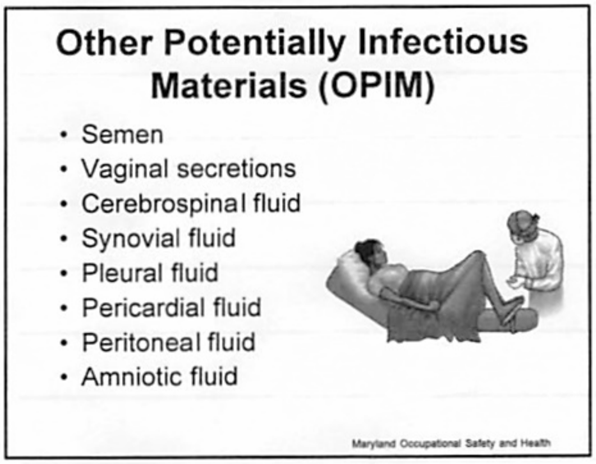

Other Potentially Infectious Materials (OPIM)

- Semen
- Vaginal secretions
- Cerebrospinal fluid
- Synovial fluid
- Pleural fluid
- Pericardial fluid
- Peritoneal fluid
- Amniotic fluid

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Other Potentially Infectious Materials

- Any unfixed tissue or organ (other than intact skin) from a human (living or dead)
- HIV-containing cell or tissue cultures, organ cultures, and HIV, HBV or HCV-containing culture medium or other solutions

(cont'd)

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Other Potentially Infectious Materials

- Blood, organs, or other tissues from experimental animals infected with bloodborne pathogens
- Saliva in dental procedures

(cont'd)

Maryland Occupational Safety and Health

Other Potentially Infectious Materials

- * Any body fluid visibly contaminated with blood
- All body fluids in situations where it is difficult or impossible to differentiate between body fluids

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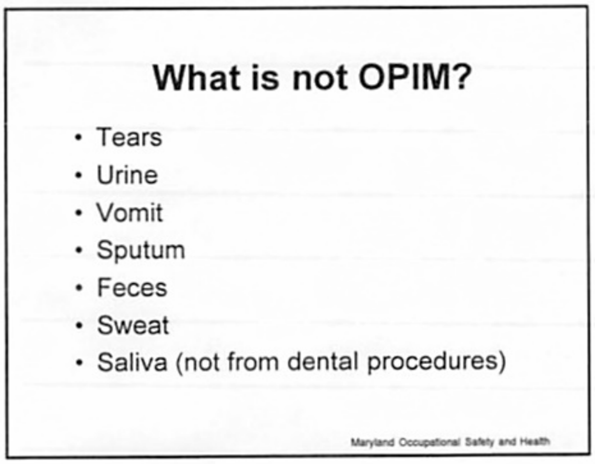

What is not OPIM?

- Tears
- Urine
- Vomit
- Sputum
- Feces
- Sweat
- Saliva (not from dental procedures)

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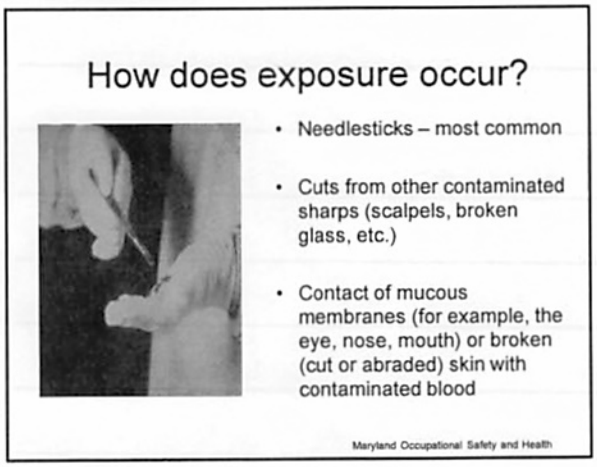

How does exposure occur?

- Needlesticks – most common
- Cuts from other contaminated sharps (scalpels, broken glass, etc.)
- Contact of mucous membranes (for example, the eye, nose, mouth) or broken (cut or abraded) skin with contaminated blood

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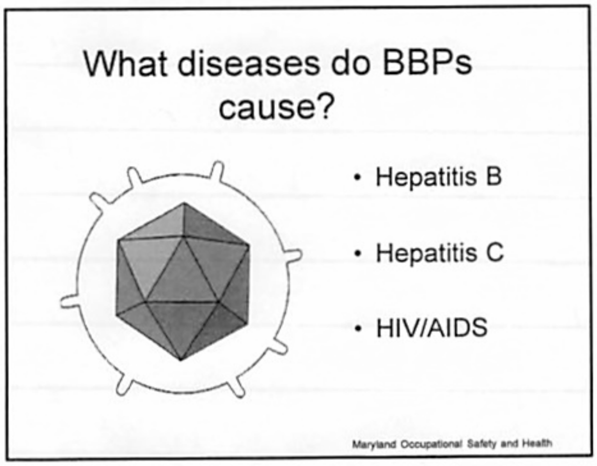

What diseases do BBPs cause?

- Hepatitis B
- Hepatitis C
- HIV/AIDS

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HIV

- Human immunodeficiency virus – can lead to acquired immune deficiency syndrome, or AIDS

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HIV

- What are the sign/symptoms & stages?
- What about treatments/cure?

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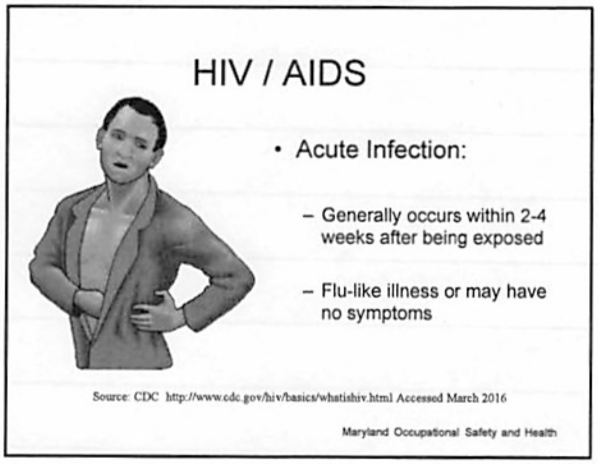

HIV / AIDS

- Acute Infection:
  - Generally occurs within 2-4 weeks after being exposed
  - Flu-like illness or may have no symptoms

Source: CDC http://www.cdc.gov/hiv/basics/whatishiv.html Accessed March 2016

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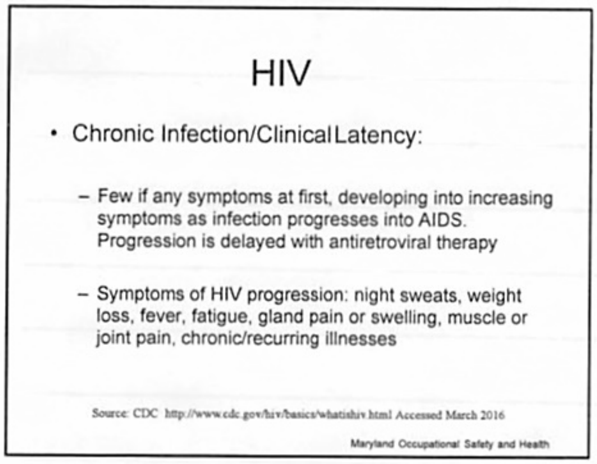

HIV

- Chronic Infection/Clinical Latency:
  - Few if any symptoms at first, developing into increasing symptoms as infection progresses into AIDS. Progression is delayed with antiretroviral therapy
  - Symptoms of HIV progression: night sweats, weight loss, fever, fatigue, gland pain or swelling, muscle or joint pain, chronic/recurring illnesses

Source: CDC http://www.cdc.gov/hiv/basics/whatishiv.html Accessed March 2016

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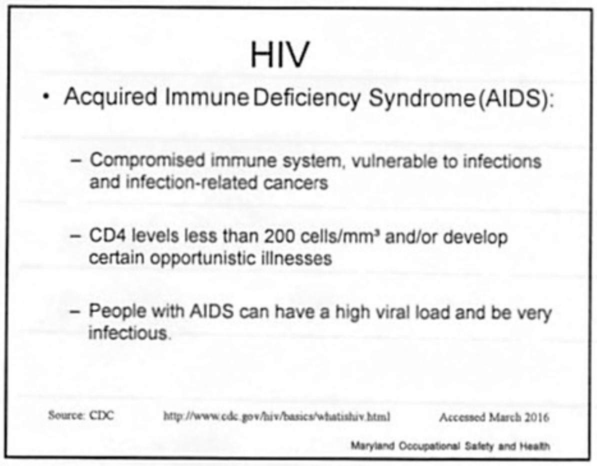

HIV

- Acquired Immune Deficiency Syndrome (AIDS):
  - Compromised immune system, vulnerable to infections and infection-related cancers
  - CD4 levels less than 200 cells/mm³ and/or develop certain opportunistic illnesses
  - People with AIDS can have a high viral load and be very infectious.

Source: CDC http://www.cdc.gov/hiv/basics/whatishiv.html Accessed March 2016

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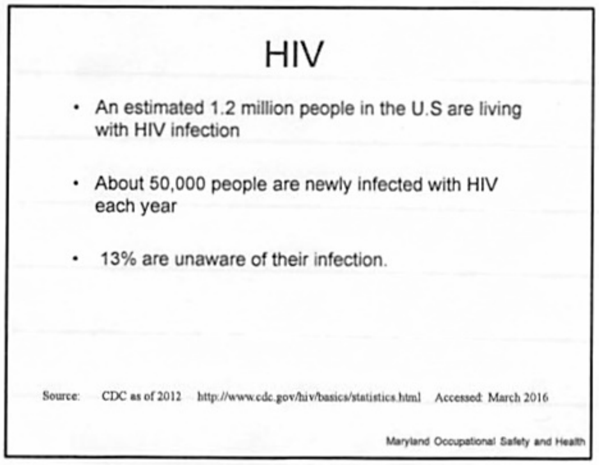

HIV

- An estimated 1.2 million people in the U.S are living with HIV infection
- About 50,000 people are newly infected with HIV each year
- 13% are unaware of their infection.

Source: CDC as of 2012 http://www.cdc.gov/hiv/basics/statistics.html Accessed: March 2016

Maryland Occupational Safety and Health

Maryland is among the 10 leading states or territories reporting the highest rate of HIV infections

Estimated Rates (per 100,000) of HIV Diagnoses, Adults and Adolescents in 2014

1. District of Columbia	66.9
2. Louisiana	36.6
3. Florida	31.3
4. Maryland	**27.7**
5. U.S. Virgin Islands	27.4
6. Georgia	27.0
7. New York	22.8
8. Puerto Rico	22.7
9. Texas	22.1
10. Mississippi	21.0
United States	**16.5**

Source: CDC http://gis.cdc.gov/grasp/nchhstpatlas/main.html?value=atlas Accessed March 2016

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HIV Treatment

- No cure, treat with medication therapy
- Antiretroviral therapies are nowmore effective, less toxic, simpler to administer
- Early diagnosis and treatmentare key

Source: CDC http://www.cdc.gov/hiv/basics/livingwithhiv/treatment.html Accessed March 2016

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HIV – Occupational Risk of Transmission

- As of December 31, 2013, 58 confirmed occupational transmissions of HIV and 150 possible transmissions had been reported in the United States, most prior to 1999.
- Health care workers who are exposed to a needlestick involving HIV-infected blood at work have a 0.23% risk of becoming infected. In other words, 2.3 of every 1,000 such injuries, if untreated, will result in infection. Risk of exposure due to splashes with body fluids are even lower risk.

Source: CDC http://www.cdc.gov/hiv/workplace/occupational.html Accessed March 2016

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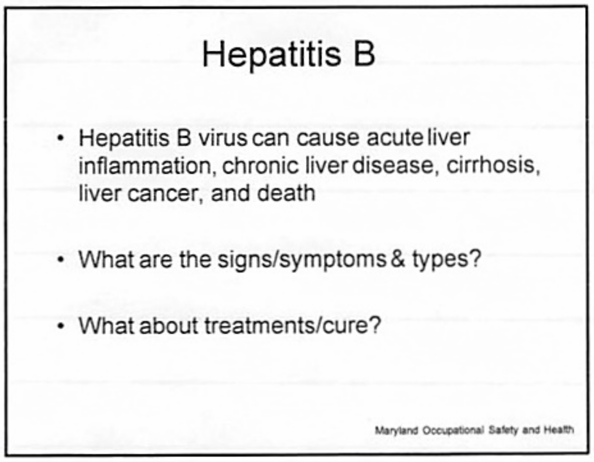

Hepatitis B

- Hepatitis B virus can cause acute liver inflammation, chronic liver disease, cirrhosis, liver cancer, and death
- What are the signs/symptoms & types?
- What about treatments/cure?

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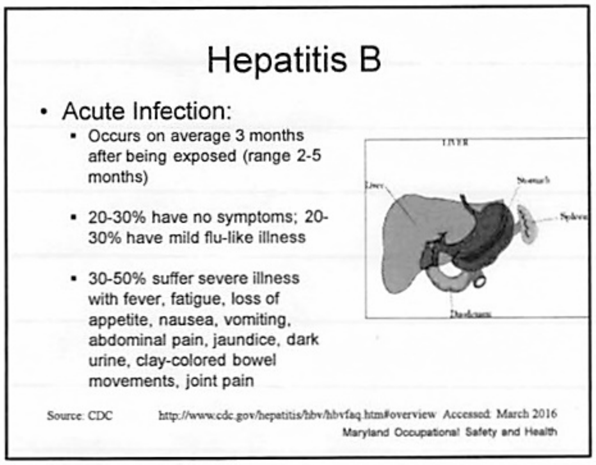

LIVER
Liver
Stomach
Spleen
Duodenum

Hepatitis B

- Acute Infection:
  - Occurs on average 3 months after being exposed (range 2-5 months)
  - 20-30% have no symptoms; 20-30% have mild flu-like illness
  - 30-50% suffer severe illness with fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, jaundice, dark urine, clay-colored bowel movements, joint pain

Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#overview Accessed: March 2016

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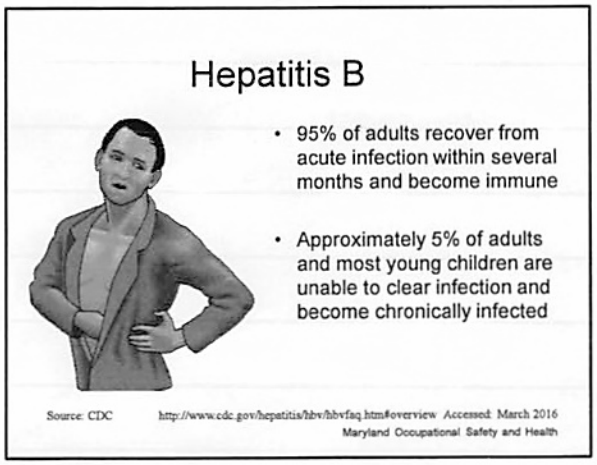

Hepatitis B

- 95% of adults recover from acute infection within several months and become immune
- Approximately 5% of adults and most young children are unable to clear infection and become chronically infected

Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#overview Accessed: March 2016

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Hepatitis B

- Chronic Infection:
  - Many people do not have symptoms for decades
  - Symptoms of chronic HBV can be similar to acute infection - fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, jaundice, dark urine, clay-colored bowel movements, joint pain
  - 15-25% of people with chronic HBV develop cirrhosis, liver cancer, or other serious conditions.

Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm Accessed March 2016

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Hepatitis B Facts

- Hepatitis B is 50-100 times more infectious than HIV
- The younger a person is when infected, the greater the risk of developing chronic hepatitis B
- Most people with chronic hepatitis B were infected at birth or in early childhood; 6%-10% of people infected after 5 years old will develop chronic infection

Source: CDC http://www.cdc.gov/hepatitis/hbv/bfaq.htm Accessed March 2016

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Hepatitis B Facts

- In 2013, an estimated 19,764 persons in the United States were newly infected with HBV. Rates are highest among adults, particularly males aged 25–44 years.
- An estimated 700,000–1.4 million persons in the United States have chronic HBV infection.

Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#ref1 Accessed March 2016

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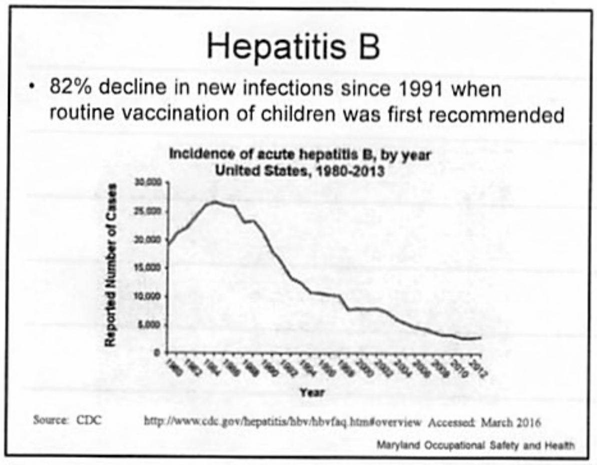

Hepatitis B

- 82% decline in new infections since 1991 when routine vaccination of children was first recommended

Incidence of acute hepatitis B, by year
United States, 1980-2013

Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#overview Accessed: March 2016

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Hepatitis B Treatment

- No treatment beyond supportive measures for acute hepatitis B
- No cure for chronic hepatitis B, only treatment with antiviral medications to slow disease progression
- Prevention through vaccination is key

Source: CDC http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#overview Accessed March 2016

Maryland Occupational Safety and Health

HBV – Occupational Risk of Transmission

- Health care workers who have received hepatitis B vaccine and have developed immunity to the virus are at virtually no risk for infection.
- For an unvaccinated person, the risk from a single needlestick or a cut exposure to HBV-infected blood ranges from 6%–30% and depends on the hepatitis B e antigen (HBeAg) status of the source individual. (Individuals who are both hepatitis B surface antigen (HBsAg) positive and HBeAg positive have more virus in their blood and are more likely to transmit HBV.)

Source: CDC http://www.cdc.gov/oralhealth/infectioncontrol/faq/bloodborne_exposures.htm
Accessed: September 2015

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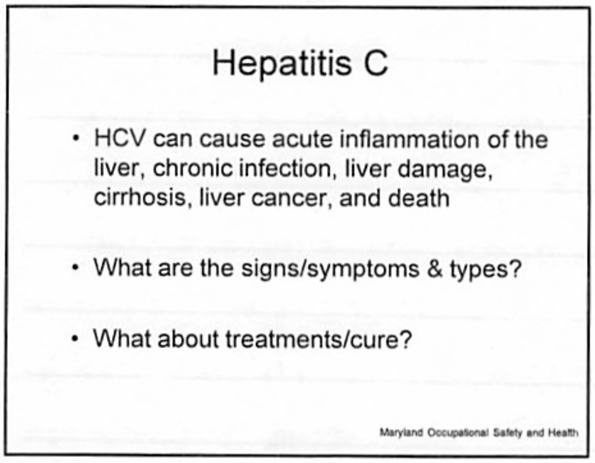
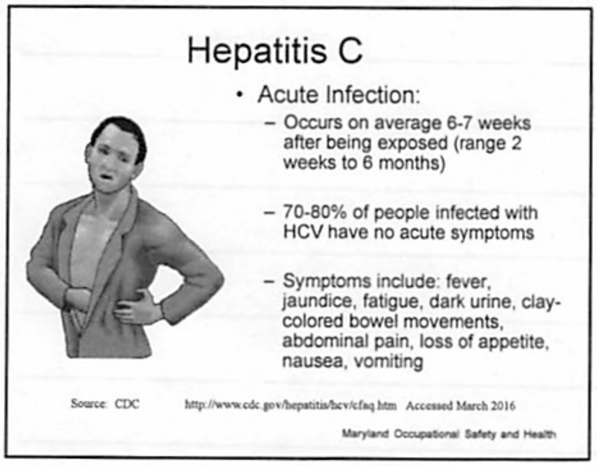


Hepatitis C

- HCV can cause acute inflammation of the liver, chronic infection, liver damage, cirrhosis, liver cancer, and death
- What are the signs/symptoms & types?
- What about treatments/cure?

Maryland Occupational Safety and Health



Hepatitis C

- Acute Infection:
  - Occurs on average 6-7 weeks after being exposed (range 2 weeks to 6 months)
  - 70-80% of people infected with HCV have no acute symptoms
  - Symptoms include: fever, jaundice, fatigue, dark urine, clay-colored bowel movements, abdominal pain, loss of appetite, nausea, vomiting

Source: CDC http://www.cdc.gov/hepatitis/hcv/cfaq.htm Accessed March 2016

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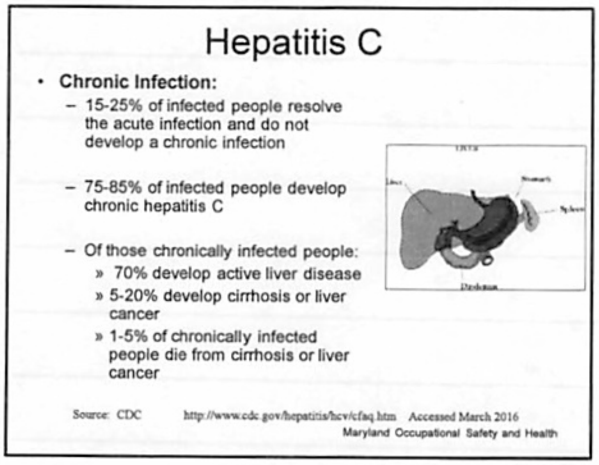

Hepatitis C

- **Chronic Infection:**
  - 15-25% of infected people resolve the acute infection and do not develop a chronic infection
  - 75-85% of infected people develop chronic hepatitis C
  - Of those chronically infected people:
    - » 70% develop active liver disease
    - » 5-20% develop cirrhosis or liver cancer
    - » 1-5% of chronically infected people die from cirrhosis or liver cancer

Liver
Stomach
Spleen
Duodenum

Source: CDC http://www.cdc.gov/hepatitis/hcv/cfaq.htm Accessed March 2016

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Hepatitis C Facts

- An estimated 29,718 cases of acute infection were reported in 2013.
- An estimated 3.5 million people in the United States have chronic hepatitis C infection.
- Approximately 15,000 people die every year from hepatitis C related liver disease.

Source: CDC http://www.cdc.gov/hepatitis/hcv/cfaq.htm Accessed March 2016

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Hepatitis C Facts

- No vaccine for HCV, though research continues
- If acute HCV is diagnosed, early treatment does reduce the risk that acute HCV will become a chronic infection.
- With new medications, it is now possible to cure chronic hepatitis C
  - Up to 90% success rate if detected and treated early.
  - Fewer side effects than previous treatments, but expensive.

Source: CDC http://www.cdc.gov/hepatitis/hcv/cfaq.htm Accessed March 2016

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Hepatitis C Facts

- HCV testing is recommended for anyone at increased risk for HCV infection, including:
  - Persons born from 1945 through 1965
  - Persons who have ever injected illegal drugs, including those who injected only once many years ago
  - Recipients of clotting factor concentrates made before 1987
  - Recipients of blood transfusions or solid organ transplants before July 1992
  - Patients who have ever received long-term hemodialysis treatment
  - And others

Source: CDC http://www.cdc.gov/hepatitis/hcv/cfaq.htm Accessed March 2016

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HCV – Risk of Occupational Transmission

- After a needlestick or sharps exposure to HCV-positive blood, the risk of HCV infection is approximately 1.8% (range: 0%–10%).
- Although a few cases of HCV transmission via blood splash to the eye have been reported, the risk for such transmission is expected to be very low.

Source: CDC http://www.cdc.gov/HAI/pdfs/bbp/Exp_to_Blood.pdf Accessed March 2016

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What's The Risk?

- HIV does not live well or long outside the body, especially when exposed to air. Risk of contracting HIV from a contaminated needle is approximately 0.3%.
- HBV can survive at least 7 days outside the body and still be capable of causing infection; dried blood can still be infectious. Risk of contracting HBV from a contaminated needle is up to 30%.
- HCV can survive outside the body at room temperature for several days up to several weeks. Risk of contracting HCV from a contaminated needle is about 2% (range: 0%–10%).

Source: CDC Accessed March 2016
http://www.cdc.gov/hepatitis/hcv/hcvfaq.htm#section1 http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm
http://www.cdc.gov/hiv/workplace/occupational.html

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Other Diseases Caused by BBPs:

- Syphilis
- Herpes
- Arboviral infections – malaria, West Nile virus, Lyme disease
- Viral hemorrhagic fever – Ebola, Marburg
- Other zoonotic illnesses – Brucellosis, Leptospirosis, Hantavirus, Lassa fever

Maryland Occupational Safety and Health

Who is covered by the standard?

- All employees who could be “reasonably anticipated”, as the result of performing their job duties, to contact blood and other potentially infectious materials

Maryland Occupational Safety and Health

Workers Who are at Risk

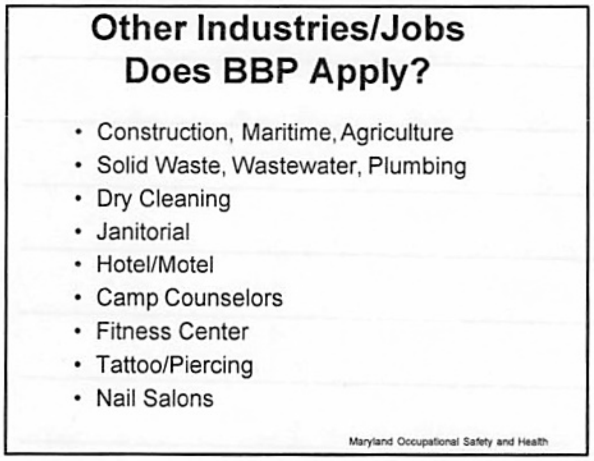
- Physicians, nurses and emergency room personnel
- Orderlies, housekeeping personnel, and laundry workers
- Dentists and other dental workers
- Laboratory and blood bank technologists and technicians
- Medical examiners
- Morticians
- Law enforcement personnel
- Firefighters
- Paramedics and emergency medical technicians
- Anyone providing first-response medical care
- Medical waste treatment employees
- Home healthcare workers

Maryland Occupational Safety and Health

Rendering First Aid

- “Good Samaritan” acts, such as assisting a co-worker with a nosebleed, would not be considered occupational exposure
- Designated first aid responders vs. “Good Samaritan”
- Is the employer required to designate employees as first aid responders?

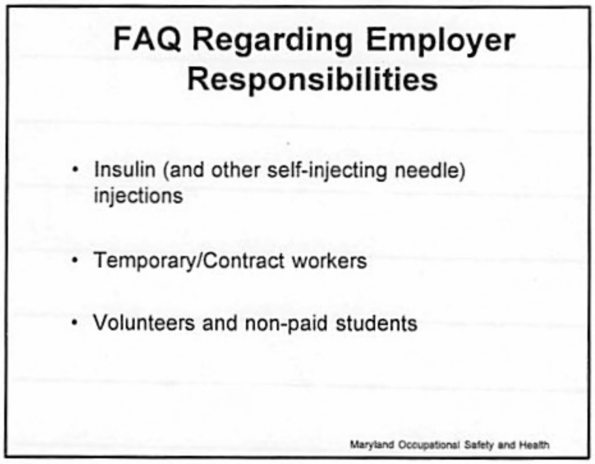
Maryland Occupational Safety and Health



Other Industries/Jobs Does BBP Apply?

- Construction, Maritime, Agriculture
- Solid Waste, Wastewater, Plumbing
- Dry Cleaning
- Janitorial
- Hotel/Motel
- Camp Counselors
- Fitness Center
- Tattoo/Piercing
- Nail Salons

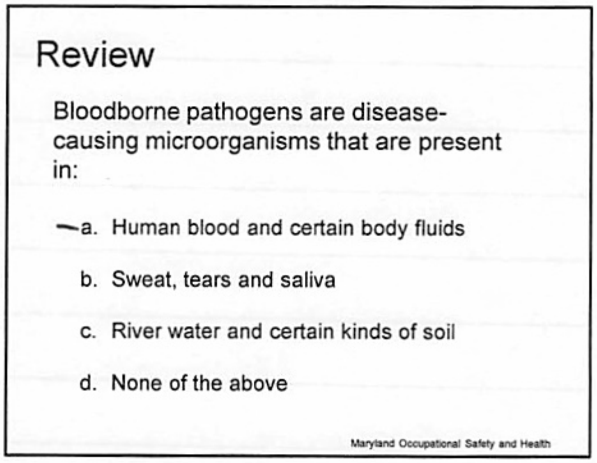
Maryland Occupational Safety and Health



FAQ Regarding Employer Responsibilities

- Insulin (and other self-injecting needle) injections
- Temporary/Contract workers
- Volunteers and non-paid students

Maryland Occupational Safety and Health



Review

Bloodborne pathogens are disease-causing microorganisms that are present in:

—a. Human blood and certain body fluids

b. Sweat, tears and saliva

c. River water and certain kinds of soil

d. None of the above

Maryland Occupational Safety and Health

Review

Transmission of bloodborne pathogens in the workplace is most likely to occur due to:

a. Accidental puncture - a sharp, contaminated object punctures your skin
b. Broken skin/body openings - infected blood or body fluids come into contact with your already broken or damaged skin, or with your eyes, nose or mouth
c. Sexual activity
[✓ d. Both a & b]
e. All of the above

Maryland Occupational Safety and Health

Review

- True or False?
  - F – You are exposed to the blood of someone that is HIV positive. You should know by the next day if you have contracted the disease.
  - F – Hepatitis B & C can be transmitted by sharing toilets and water fountains.

Maryland Occupational Safety and Health

Review

- Y An employee works at ABC Company and one of his job responsibilities is to respond to medical emergencies. Would he be covered by the BBP standard?
- N A custodian in an office building cleans the restrooms nightly. Would she be covered by the BBP standard?

Maryland Occupational Safety and Health

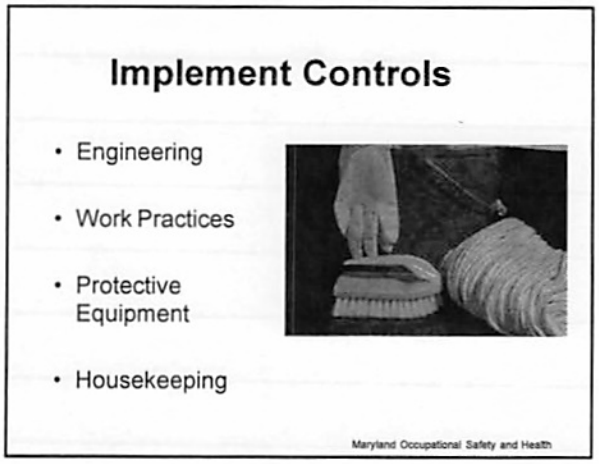
Questions?

Maryland Occupational Safety and Health

Ways of Minimizing Risk

- Exposure Control Plan
- Implement Controls
- Hepatitis B Vaccine
- Container Labeling
- Employee Training

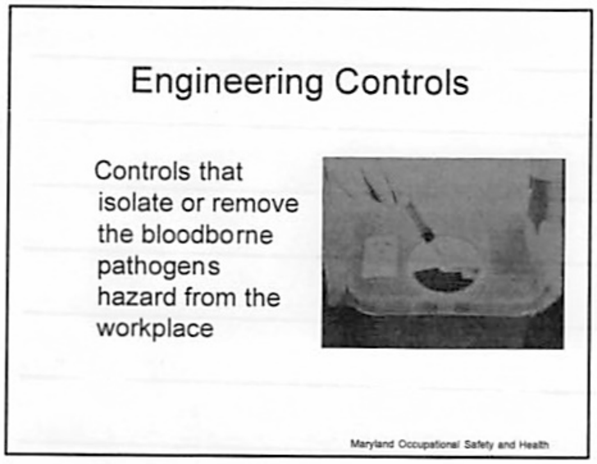
Maryland Occupational Safety and Health



Implement Controls

- Engineering
- Work Practices
- Protective Equipment
- Housekeeping

Maryland Occupational Safety and Health



Engineering Controls

Controls that isolate or remove the bloodborne pathogens hazard from the workplace

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Engineering Controls (cont'd)

- Must use engineering controls as the primary means of minimizing employee exposure, unless they:
  - Are not commercially available; and/or
  - Create a greater hazard ofemployee exposure; and/or
  - Compromise patient care

Maryland Occupational Safety and Health

Engineering Controls (cont'd)

- Must eliminate or reduce exposure to lowest feasible extent
- Require work practice controls and PPE if engineering controls do not eliminate exposure
- Include controls in Exposure Control Plan

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Engineering Controls (cont'd): Safer Sharps

- Generally of 2 types:
  - Needleless
  - Sharps with engineered protection (SESIP)
    - Active
    - Passive
- Employer must use substitution methods
  - e.g. plastic rather than glass
- Employees must be involved in the selection of effective engineering controls

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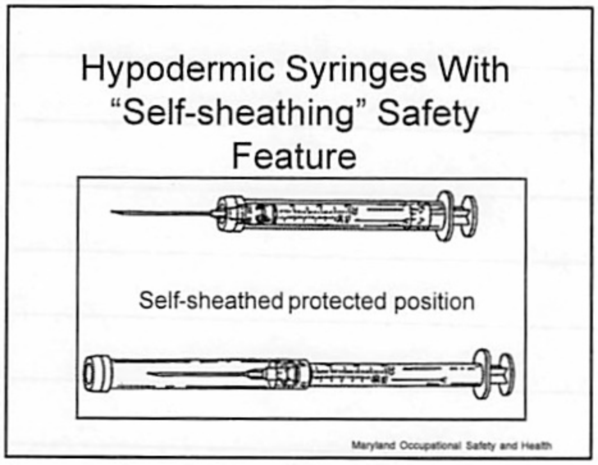

Hypodermic Syringes With "Self-sheathing" Safety Feature

Self-sheathed protected position

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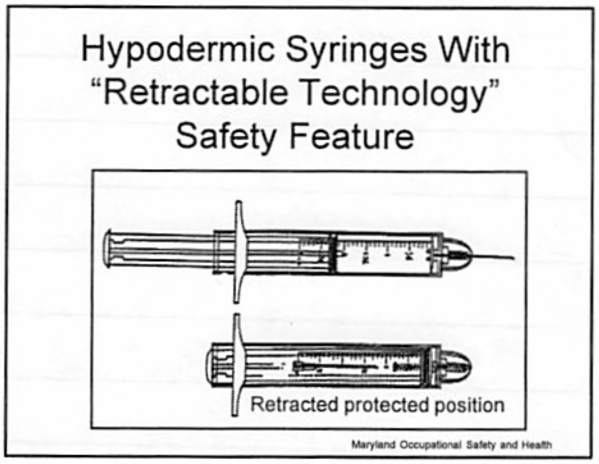

Hypodermic Syringes With "Retractable Technology" Safety Feature

Retracted protected position

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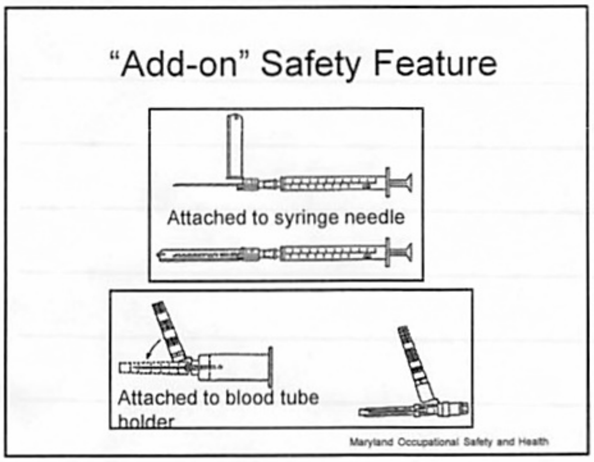

"Add-on" Safety Feature

Attached to syringe needle

Attached to blood tube holder

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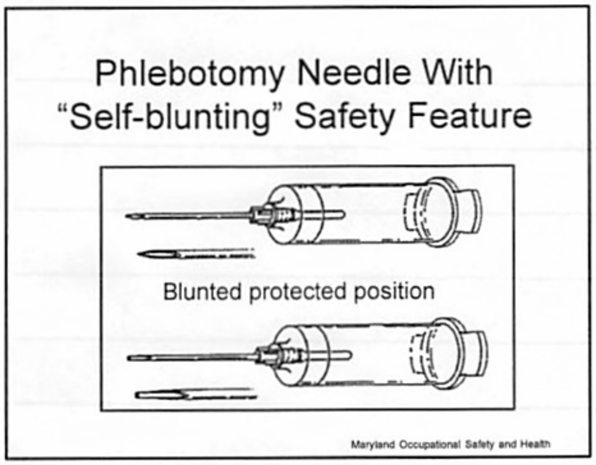

Phlebotomy Needle With "Self-blunting" Safety Feature

Blunted protected position

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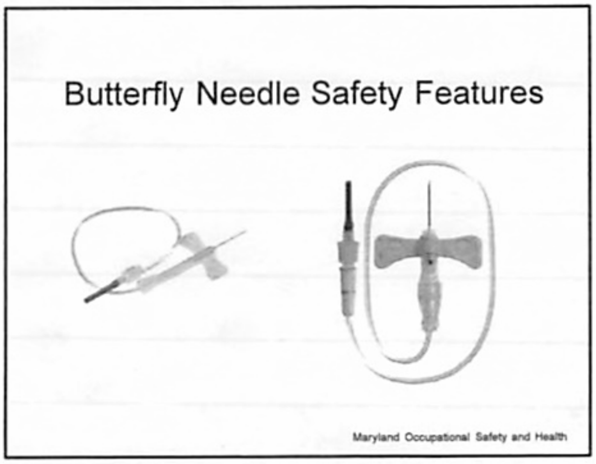

Butterfly Needle Safety Features

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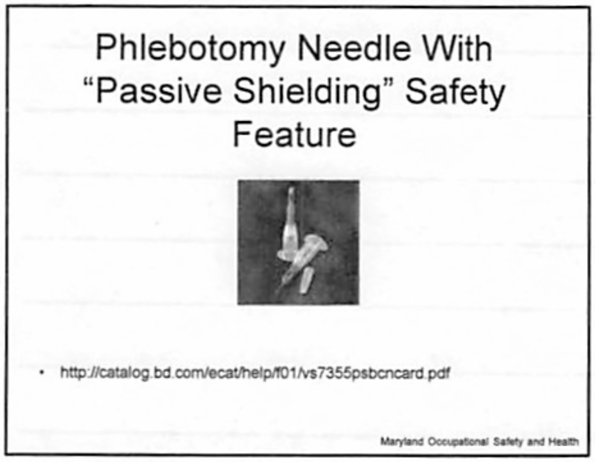

Phlebotomy Needle With "Passive Shielding" Safety Feature

- http://catalog.bd.com/ecat/help/f01/vs7355psbcncard.pdf

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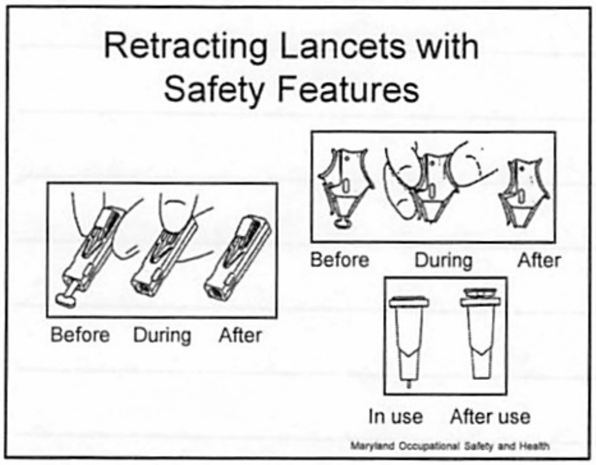

Retracting Lancets with Safety Features

Before During After

Before During After

In use After use

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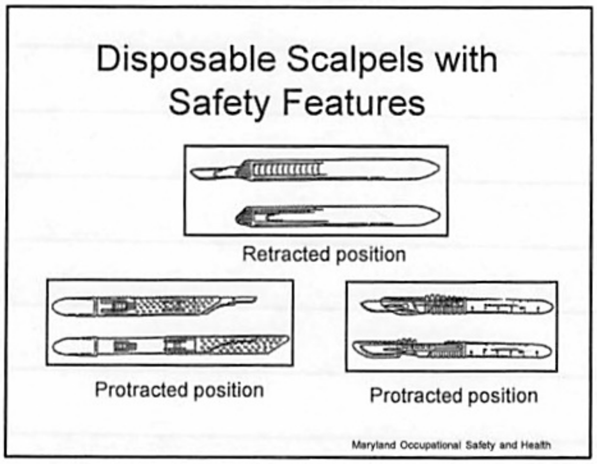

Disposable Scalpels with Safety Features

Retracted position

Protracted position

Protracted position

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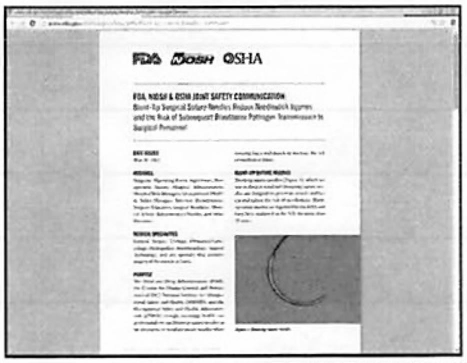
Blunt Tip Suture Needles



FDA, NIOSH & OSHA JOINT SAFETY COMMUNICATION

Blunt-Tip Surgical Suture Needles Reduce Needlestick Injuries and the Risk of Subsequent Bloodborne Pathogen Transmission to Surgical Personnel

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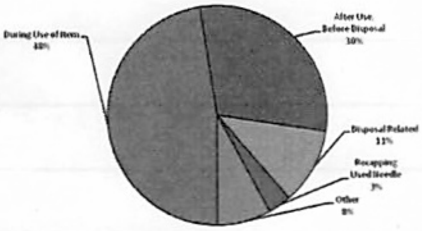
How Do Sharps Injuries Occur?



http://www.cdc.gov/niosh/stopsticks/sharpsinjuries.html#overview

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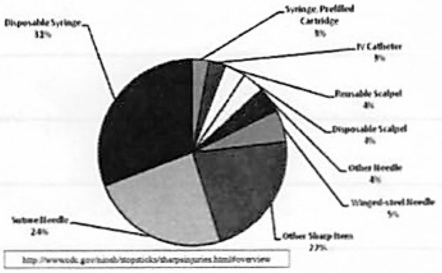
What Devices Are Involved?



http://www.cdc.gov/niosh/stopsticks/sharpsinjuries.html#overview

Maryland Occupational Safety and Health

Considerations When Choosing Safety Devices

- Does product require use of the safety feature?
- Is safety feature an integral part of device?
- Does safety feature interfere with vision?
- Does safety feature significantly extend time needed to perform procedure?
- Does device work with right/left handed people? Variety of hand sizes?
- Can device be handled by gloved hands?
- Does safety device interfere with normal use of the product?
- Does device place barrier between user's hands and the needle?

Maryland Occupational Safety and Health

Considerations When Choosing Safety Devices

- Does safety feature require the user's hands to remain behind the needle at all times?
- Does the product cause harm or discomfort to the patient?
- Is there an audible/visible sign of activation?
- Does safety feature operate reliably?
- Is the safety feature in effect before disassembly and does it stay in effect after disposal?
- Is the device simple with minimal need for education and training?
- Is the safety feature difficult or impossible to bypass?

Maryland Occupational Safety and Health

NIOSH Guidelines For Selecting and Evaluating Needle Devices With Safety Features

- http://www.cdc.gov/niosh/docs/2000 108/pdfs/2000-108.pdf

Maryland Occupational Safety and Health

Needlestick Prevention Device Evaluation

- http://www.osha.gov/OshDoc/Directive_pdf/CPL_2-2_69_APPBForm2.pdf
- http://www.tdict.org/evaluation2.html

Additional Information About Safety Devices Available at...

http://www.healthsystem.virginia.edu/pub/epinet/new/safetydevice.html

http://www.tdict.org/index.htm

http://www.isips.org/

http://www.osha.gov/SLTC/bloodbornepathogens/evaluation.html

Work Practice Controls

Controls that reduce the likelihood of exposure by altering the manner in which a task is performed

Work Practice Controls (cont'd):

- Universal Precautions
  - An approach to infection control where ***all*** human blood and ***certain*** human body fluids are treated as if known to be infectious for HIV, HBV, HCV and other bloodborne pathogens

Maryland Occupational Safety and Health

Work Practice Controls (cont'd)

- Standard Precautions and Body Substance Isolation
  - Approaches to infection control where ALL body fluids are treated as infectious

STANDARD PRECAUTIONS

Maryland Occupational Safety and Health

Work Practice Controls (cont'd)

- Handwashing
- No eating, drinking, smoking or applying cosmetics in areas with exposure
- No mouth pipetting
- Re-capping of needles?

Maryland Occupational Safety and Health

Personal Protective Equipment

Specialized clothing or equipment worn by an employee for protection against a hazard

Maryland Occupational Safety and Health

Personal Protective Equipment

- Gloves*
- Gowns
- Face masks
- Safety glasses or goggles
- Faceshields
- Lab Coats
- Mouthpieces/ResuscitationDevices

Maryland Occupational Safety and Health

Personal Protective Equipment (cont'd)

- Employer responsible for:
  - Providing, at no cost
  - Requiring use
  - Ensuring proper fit
  - Cleaning, laundering, repair, replacement, disposal

Maryland Occupational Safety and Health

Housekeeping

- Written schedule
- Appropriate cleaning and decontamination
- Regulated waste
- Laundry

Maryland Occupational Safety and Health

Housekeeping (cont'd)

- Must develop a written schedule for cleaning and decontamination at the work site based on the:
  - Location within the facility
  - Type of surface to be cleaned
  - Type of soil present
  - Tasks or procedures being performed

Maryland Occupational Safety and Health

Housekeeping (cont'd)

- Work surfaces must be decontaminated with an appropriate disinfectant:
  - After completion of procedures,
  - When surfaces are contaminated, and
  - At the end of the work shift

http://www.epa.gov/oppad001/chemregindex.htm

Maryland Occupational Safety and Health

Regulated Waste

Must be placed in closeable, leak-proof, containers built to contain all contents during handling, storing, transporting or shipping and be appropriately labeled or color-coded.

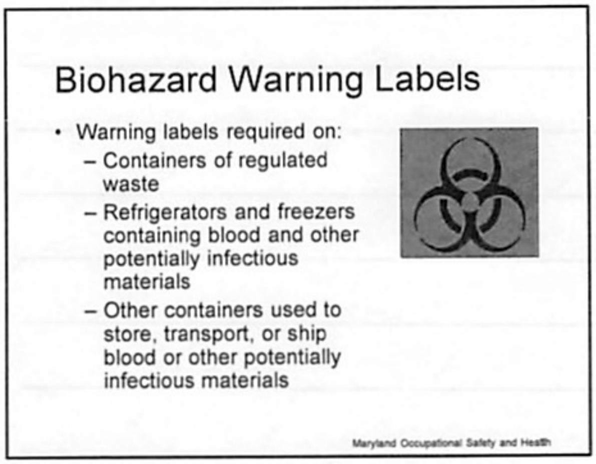
Regulated Waste (cont'd)

- Sharps Containers
  - Closable
  - Puncture-resistant
  - Leakproof on sides and bottom
  - Labeled
  - Easily accessible
  - Replaced routinely

INSTALL ON WALL
52 TO 59 INCHES FROM FLOOR

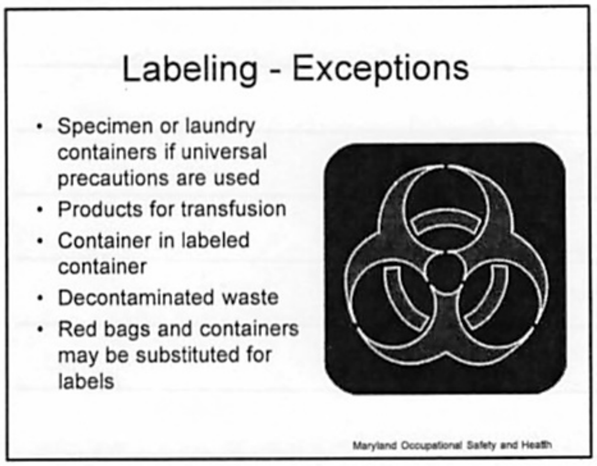
Laundry

- Handle contaminated laundry as little as possible and use PPE
- Must be bagged or containerized at location where used
- No sorting or rinsing at location where used
- Must be placed and transported in labeled or color-coded containers



Biohazard Warning Labels

- Warning labels required on:
  - Containers of regulated waste
  - Refrigerators and freezers containing blood and other potentially infectious materials
  - Other containers used to store, transport, or ship blood or other potentially infectious materials



Labeling - Exceptions

- Specimen or laundry containers if universal precautions are used
- Products for transfusion
- Container in labeled container
- Decontaminated waste
- Red bags and containers may be substituted for labels

Review

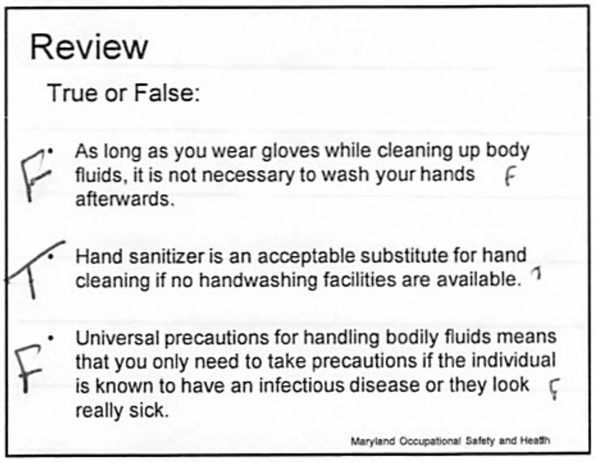
Which of the following should be thrown into a special "medical waste" trash bag or receptacle?

a) a tissue with mucus

b) a plastic bandage with a small drop of blood

c) a paper towel completely soaked with blood

d) all of the above



Review

True or False:

- F As long as you wear gloves while cleaning up body fluids, it is not necessary to wash your hands F afterwards.
- T Hand sanitizer is an acceptable substitute for hand cleaning if no handwashing facilities are available. T
- F Universal precautions for handling bodily fluids means that you only need to take precautions if the individual is known to have an infectious disease or they look F really sick.

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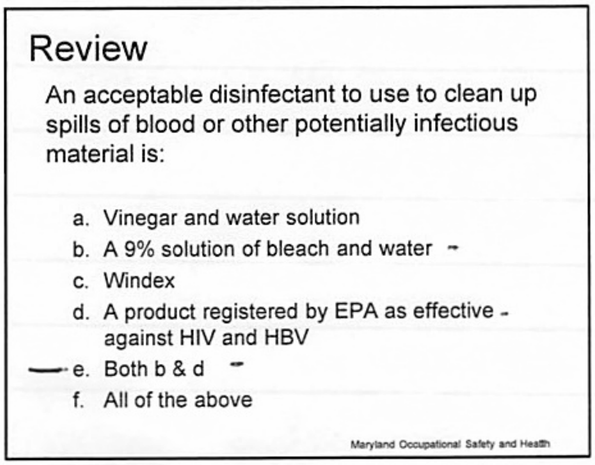

Review

An acceptable disinfectant to use to clean up spills of blood or other potentially infectious material is:

a. Vinegar and water solution
b. A 9% solution of bleach and water
c. Windex
d. A product registered by EPA as effective against HIV and HBV
e. Both b & d
f. All of the above

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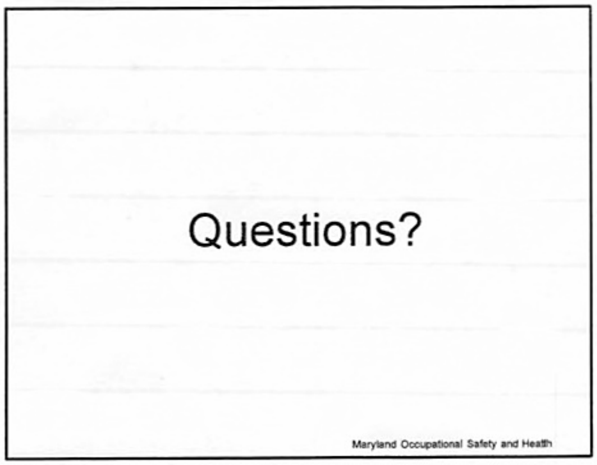

Questions?

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Ways of Minimizing Risk: Hepatitis B Vaccine

- Availability
- Exceptions
- Declines
- Boosters per USPHS

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Hepatitis B Vaccination Requirements

- Must make available, free of charge at a reasonable time and place, to all employees at risk of exposure within 10 working days of initial assignment unless:
  - employee has had the vaccination
  - antibody testing reveals immunity
- The vaccination must be performed by a licensed healthcare professional

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Hepatitis B Vaccination Requirements (cont'd)

- Must be provided even if employee initially declines but later decides to accept the vaccination
- Employees who decline the vaccination must sign a declination form
- Employees are not required to participate in antibody prescreening program to receive vaccination series
- Vaccination booster doses recommended only in certain circumstances

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Hepatitis B Vaccination Requirements (cont'd)

- Employees at high risk for continued percutaneous or mucosalexposure to blood and body fluids must be tested for immune status, one to two months after the completion of the three-dose vaccination series
  - Employees not responding to the primary vaccination series will be re-vaccinated and re-tested
    - » Non-responders must be medically evaluated

Ways of Minimizing Risk: Training

- Provide at no cost during working hours
- Provide initially and annually
- Additional training when necessary
- Maintain training records for 3 years

Training Elements

- Copy of the standard
- Modes of transmission
- Epidemiology of bloodborne diseases
- Job duties with exposure
- Site-specific exposure control plan
- Signs/labels (color-coding

(cont'd)

~~Betty Scott~~

~~Go Lunch~~

Training Elements

- Hazard recognition
- Use of engineering controls, work practices and PPE
- Hepatitis B vaccination program
- Post-exposure and follow-up procedures
- Emergency procedures
- Live question and answer sessions

Responding to Exposure Incidents

- Exposure incident
  - Specific eye, mouth or other mucous membrane, non-intact skin, parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties

What to do if an exposure occurs?

- Wash exposed area with soap and water
- Flush splashes to nose, mouth, or skin with water
- Irrigate eyes with water or saline
- Report the exposure
- Direct the worker to a healthcare professional

Post-Exposure Follow-Up

- Immediately available
- Confidential
- Consistent with CDC guidelines

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Post-Exposure Follow-Up

- Document exposure
- Record injuries in a sharps injury log
- Obtain consent
- Provide risk counseling and offer post-exposure protective treatment
- Provide written opinion of physician findings to employer and copy to employee within 15 days of the evaluation

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Post-Exposure Follow-Up: Issues in Identifying a Healthcare Provider

- Hours of availability
- Knowledge of CDC/Public Health Service guidelines
  - HIV, HBV, HCV

(cont'd)

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Post-Exposure Follow-Up: Issues in Identifying a Healthcare Provider

- Willingness to provide counseling and follow-up
- Availability of post-exposure prophylaxis (PEP)

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Post-Exposure Follow-Up: Information to Be Provided to Healthcare Provider

- Copy of regulation
- Exposed employee duties related to exposure
- Route of exposure and circumstances
- Results of source individual testing
- Relevant medical records e.g. vaccination status

Maryland Occupational Safety and Health

Recordkeeping

- Medical Records
- Training Records
- OSHA 300 and Sharps Injury Log

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Medical Recordkeeping Requirements

- Records must include:
  - Employee's name and social security number
  - Employee's hepatitis B vaccination status
  - Results of examinations, medical testing, and post-exposure evaluation and follow-up procedures
  - Health care professional's written opinion
  - Information provided to the health care professional

Medical Recordkeeping Requirements (cont'd)

- Employee medical records must be kept confidential and not disclosed or reported without the employee's written consent (unless required by law)
- Medical records must be maintained for duration of employment plus 30 years according to OSHA's rule governing access to employee exposure and medical records

Training Recordkeeping Requirements

- Must include:
  - Dates of training sessions
  - Contents or summary of training sessions
  - Names and qualifications of persons conducting training
  - Names and job titles of persons attending training
- Must be maintained for 3 years

Injury and Illness Recordkeeping Requirements

- OSHA/MOSH Injury and Illness Logs
  - OSHA 300 logs and summaries (exposure incidents)
  - Privacy concern case
- Sharps Injury Log

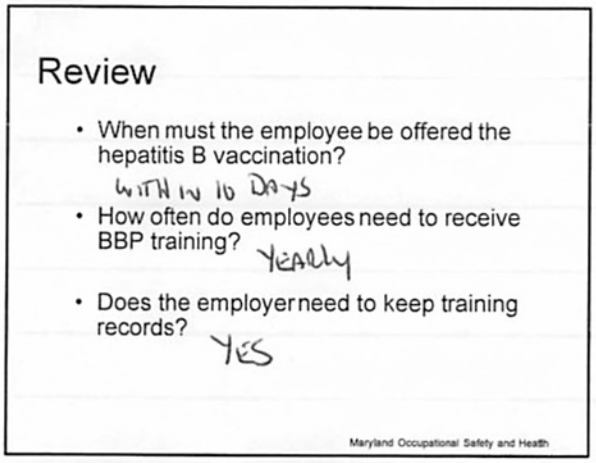
Sharps Injury Log

- Required to be kept by employers who must maintain a log of occupational injuries and illnesses per 29 CFR 1904
- Ensure privacy/confidentiality
- Record of percutaneous injuries from contaminated sharps
  - Type and brand of device involved
  - Department or area of incident
  - Explanation of how incident occurred

Review

If you have been exposed to blood or potentially infectious materials at work, what actions should you take?

a. Complete a follow-up evaluation
b. Wash or flush the affected body part
c. Report the exposure to a supervisor
d. All of the above



Review

- When must the employee be offered the hepatitis B vaccination?

  WITHIN 10 DAYS
- How often do employees need to receive BBP training? YEARLY
- Does the employer need to keep training records? YES

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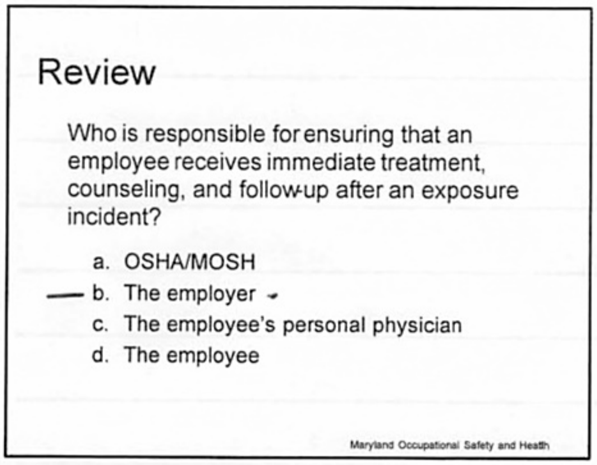

Review

Who is responsible for ensuring that an employee receives immediate treatment, counseling, and follow-up after an exposure incident?

a. OSHA/MOSH

[✓ b. The employer]

c. The employee's personal physician

d. The employee

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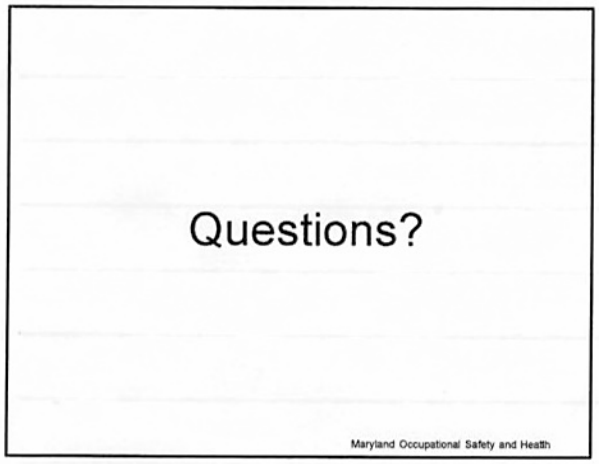

Questions?

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MOSH

Bloodborne Pathogens:
The Exposure Control Plan

Exposure Control Plan

- Must be:
  - Written
  - Accessible to employees(copy upon request)
  - Reviewed and updated at least annually, or as necessary
  - Made available to MOSH
  - Site-specific

Exposure Control Plan (cont'd)

- Must include:
  - Employee exposure determination
  - Schedule and method of implementation for:
    - Methods of compliance (d)
    - HIV/HBV research labs (e) if applicable
    - HBV vaccinations and post exposure evaluation and follow-up follow-up (f)
    - Communication of hazards (g)
    - Recordkeeping (h)
  - Procedure for evaluation of circumstances surrounding exposure incidents

Exposure Control Plan: Annual Review

- Annual review and update must include:
  - New or modified tasks and procedures
  - New or revised employee positions
  - Changes in technology which eliminate or reduce exposure

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Exposure Control Plan: Annual Review (cont'd)

- Consideration and implementation of appropriate commercially available and effective engineering controls
- Input from non-managerial employees in the identification, evaluation, and selection of effective engineering work practice controls
- Documentation of solicitation in Exposure Control Plan

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Written Exposure Control Plan: Exposure Determination

- Must contain:
  - List of all job classifications where all employees of those classifications have occupational exposure
  - List of job classifications where some of the employees have occupational exposure
  - List of tasks and procedures in which occupational exposure occurs
- Must be made without regard to the use of personal protective equipment

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Written Exposure Control Plan: Methods of Compliance

- Written plan must reflect:
  - Universal precautions/standard precautions/ body substance isolation
  - Engineering controls and workpractices
  - Personal Protective Equipment (PPE)
  - Housekeeping

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Written Exposure Control Plan: Methods of Compliance (cont'd)

- Universal precautions
  - All blood and other potentially infectious materials treated as infectious for bloodborne pathogens regardless of low risk perception
- Standard precautions, bodysubstance isolation
  - All body fluids and substances treated as infectious for bloodborne pathogens

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Written Exposure Control Plan: Methods of Compliance (cont'd)

- Engineering controls and work practices:
  - Should be specificas to type and location
  - Discuss review mechanism
  - Identify employeeshaving input in review and how they are involved

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Written Exposure Control Plan: Methods of Compliance (cont'd)

- Personal Protective Equipment
  - Include the type(s) of PPE available
  - PPE location
  - Person responsible for ensuring availability

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Written Exposure Control Plan: Methods of Compliance (cont'd)

- Personal Protective Equipment (cont'd)
  - Where PPE is to be worn
  - Procedures to follow for PPE use
  - Procedures for maintaining PPE
    - » cleaning, replacement, repair, disposal

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Written Exposure Control Plan: Methods of Compliance (cont'd)

- Housekeeping
  - Procedures for contaminated sharps
    - » Disposable versus non-disposable
  - Procedures for sharps disposal containers
  - Procedures for other regulated waste
    - » Dressings, containers, anatomical
  - Cleaning of work surfaces and other contaminated equipment

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Written Exposure Control Plan: Hepatitis B Vaccination

- Discuss vaccination program
  - Availability
  - Name and location of vaccination provider
  - Provision of antibody testing following vaccination series
    - Essentially for healthcare workers
  - Employee declination statements

Written Exposure Control Plan: Post Exposure Evaluation and Follow-up

- Name of contact person following an exposure incident
- Information to be obtained and procedures to follow after an exposure incident

Written Exposure Control Plan: Post Exposure Evaluation and Follow-up (cont'd)

- Name of healthcare provider and/or counselor
- Information to be taken to healthcare provider

Written Exposure Control Plan: Post Exposure Evaluation and Follow-up (cont'd)

- Procedure for ensuring employee notice of healthcare provider's written opinion
- Procedures for evaluation of circumstances surrounding incident
- Medical recordkeeping

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Written Exposure Control Plan: Communication of Hazards

- Labels and Signs
  - Items to be labeled
    - Specimens, laundry, containers, equipment
  - Areas to be posted (research labs only)
  - Name of responsible person

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Written Exposure Control Plan: Communication of Hazards (cont'd)

- Employee Training
  - Dates of training sessions
  - Names and job titles of attendees
  - Identify trainer(s) and qualifications
  - Identify training elements

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Written Exposure Control Plan: Recordkeeping

- Medical and Training Records
  - Records' contents
  - Responsible person
  - Location
  - Method of access
  - Retention schedule
  - Transfer

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Written Exposure Control Plan: Recordkeeping (cont'd)

- OSHA/MOSH
  - OSHA 300 (exposure incidents)
- Sharps injury log

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Available Resources

- www.osha.gov
- http://www.osha.gov/SLTC/bloodbornepathogen/enforcement.html
- http://www.osha.gov/SLTC/etools/hospital/
  - Copy of 29 CFR 1910.1030
  - Copy of CPL 2-2.69 with model Exposure Control Plan
  - Letters of interpretation
  - Links to other sources of help
    - » CDC, NIOSH, etc

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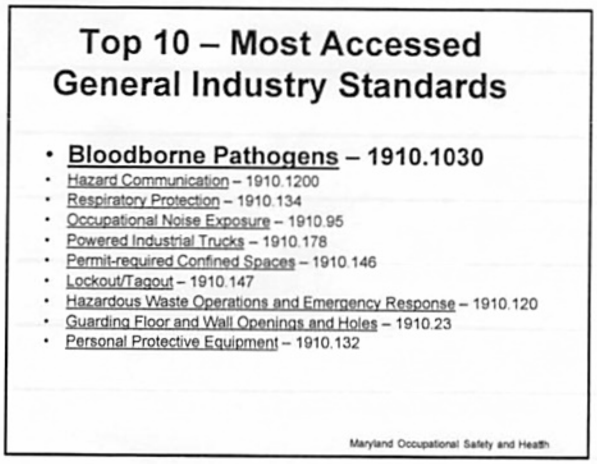

Top 10 – Most Accessed General Industry Standards

- **Bloodborne Pathogens – 1910.1030**
- Hazard Communication – 1910.1200
- Respiratory Protection – 1910.134
- Occupational Noise Exposure – 1910.95
- Powered Industrial Trucks – 1910.178
- Permit-required Confined Spaces – 1910.146
- Lockout/Tagout – 1910.147
- Hazardous Waste Operations and Emergency Response – 1910.120
- Guarding Floor and Wall Openings and Holes – 1910.23
- Personal Protective Equipment – 1910.132

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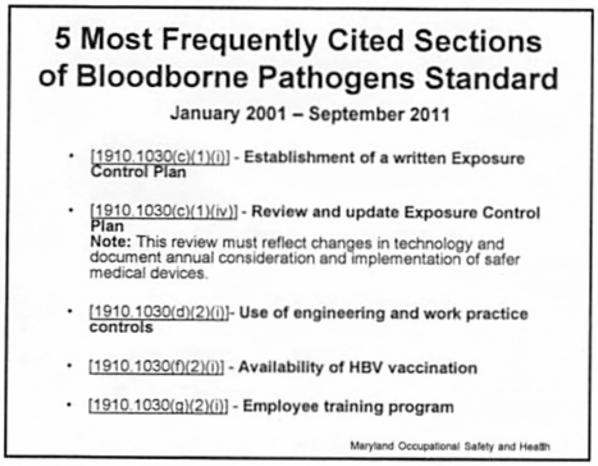

5 Most Frequently Cited Sections of Bloodborne Pathogens Standard

January 2001 – September 2011

- [1910.1030(c)(1)(i)] - **Establishment of a written Exposure Control Plan**
- [1910.1030(c)(1)(iv)] - **Review and update Exposure Control Plan**
  Note: This review must reflect changes in technology and document annual consideration and implementation of safer medical devices.
- [1910.1030(d)(2)(i)]- **Use of engineering and work practice controls**
- [1910.1030(f)(2)(i)] - **Availability of HBV vaccination**
- [1910.1030(g)(2)(i)] - **Employee training program**

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Questions?

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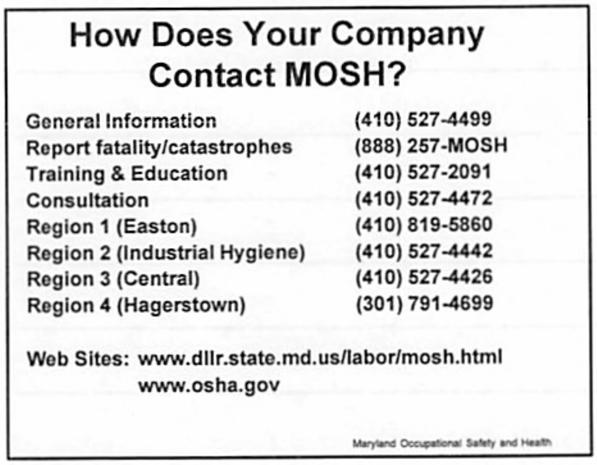

How Does Your Company Contact MOSH?

General Information	(410) 527-4499
Report fatality/catastrophes	(888) 257-MOSH
Training & Education	(410) 527-2091
Consultation	(410) 527-4472
Region 1 (Easton)	(410) 819-5860
Region 2 (Industrial Hygiene)	(410) 527-4442
Region 3 (Central)	(410) 527-4426
Region 4 (Hagerstown)	(301) 791-4699

Web Sites: www.dllr.state.md.us/labor/mosh.html
www.osha.gov

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